AUGUST 1926 ~ Nº 247

Monthly

A Reference for Buyers

HITCHCOCK'S MACHINE TOOL BLUE BOOK

25,000

Controlled Circulation

Published By
HITCHCOCK PUBLISHING CO.
508 So. DEARBORN ST.
CHICAGO

FOR INDEX SEE LAST PAGE

We build both alternating and direct current motors with ball bearings, roller bearings or sleeve bearings.

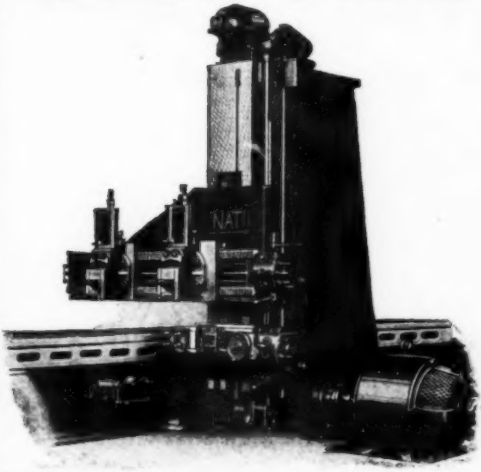
Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, Ohio

Branches:

Boston New York Philadelphia Pittsburgh
Cincinnati Detroit Chicago Birmingham, Ala.

We specialize in motors, sizes 1/2 to 250 h. p. constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

CINCINNATI HYPRO OPEN SIDE



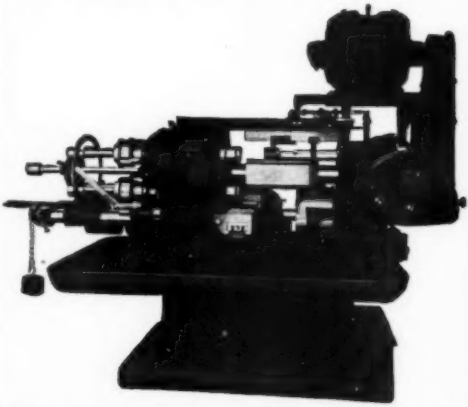
High Production Features:

Selective Dial Feed
Rail Clamping Device
Instantaneous Rail Lift
Rapid Power Traverse
Forced Lubrication
Combination Steel
Herringbone and Spur Gear Drive
Long Inverted Dovetail Down-Slide

The Cincinnati Planer Co.

Cincinnati, Ohio

It Pays to Know
What the Gridley Can Do



Many are the concerns, using parts from bar stock, that have saved thousands of dollars a year through investing a few thousands in Model G Gridley Multiple Spindle Automatic Screw Machines.

We are not asking you to buy. We want you only to find out definitely what the Gridley can do for you. Send B/P or Samples of your bar stock parts for definite production figures—no obligation whatsoever.

Write Dept. C. S.

The National Acme Co.

Cleveland, Ohio

New York Detroit Chicago

See the Exhibits of

Cleveland Automatics

at the

Sixth Annual New Haven Machine Tool Exhibition, New Haven, Connecticut September 7-8-9-10, 1926

and at the

National Steel and Machine Tool Exposition, Municipal Pier, Chicago September 20 to 24, 1926

This will give you the opportunity of securing first-hand information as to the latest developments in Cleveland Automatics. If you can't be there, write for our latest Catalog—pleased to send it.

Cleveland Automatic Machine Co.

Cleveland, Ohio

Successful in Big Motor Plants

High Speed Pneumatic Oscillating Tapping Machine Increases Tapping 100 to 300%

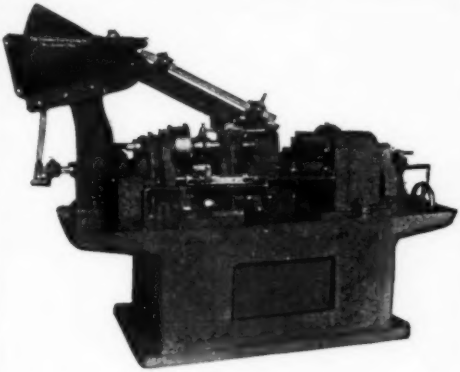
Let AIR do it—and save money!

Write us your requirements and we will make you a guaranteed production estimate. Wont obligate you in the least.

This Remarkable Cost Reducer automatically carries out the principle of Hand Tapping!

Also built in a Drilling and Tapping Combination

W. GATERMAN MFG. CO., Manitowoc, Wis., U.S.A.



"This is Production"

2800 Pointed and Threaded ½" Bolts Per Hour— One Operator!

WHEN USING

Four Economy Automatic Combined Pointing and Threading Machines.

Capacity ¼"x1" to ¾"x5½" Bolt and Cap Screws.

The Economy Engineering Company

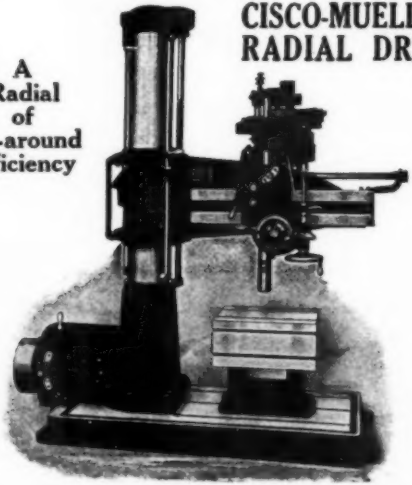
WILLOUGHBY, OHIO

No Need To Look Further

Here's the Radial you want! We have recently purchased the Mueller Machine Tool Co., and will continue to manufacture this splendid tool.

CISCO-MUELLER RADIAL DRILL

A Radial of all-around efficiency



An admirable feature of the CISCO-MUELLER is the remarkably simple construction of the gear box. The parts are few in number, but powerful enough to withstand the severest strains without signs of wear. Changes are made instantly without shock or noise. Then there's the patented stationary column, combination positive and friction feed, simple control, great rigidity—in fact, it's a tool of all-around efficiency.

We'll appreciate your inquiry; you'll like this drill

The Cisco Machine Tool Co.

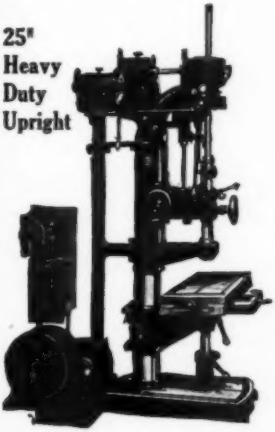
1700 Elmore Street, Cincinnati, Ohio

In All Drilling Operations, There's

A Fosdick for Your Needs

And Every One a Real Leader

25" Heavy Duty Upright



Uprights

21" to 30", capacity 3/16" to 3". See illustration.

Radials

All geared high speed to heavy duty, 2 to 6 ft., cap. 3/16" to 4" drills.

Balanced Arm, motor driven, 4 to 6 ft.

High Speed Sensitive, 3, 3½ and 4 ft., for drilling and tapping, capacity to 1".

Ball Bearing Sensitive

16" to 24", 1 to 6 spindle, capacity to 1⅛", also 13" Superspeed.

The illustration shows the Fosdick 25" Heavy Duty Upright, with 3-to-1 variable speed motor drive, and with vertical milling support and compound table. This is a higher grade drilling and tapping machine with cutting speeds for drills from 3/16" carbon to 2½" high speed in cast iron or steel, or for boring up to 5" diameter, all with but one speed at pulley. It is unsurpassed in convenience and economy of operation, and in its capacity for large production of accurate work. Ball bearing in all essential places, including spindle thrust.

Write for the handsome illustrated Catalog
It may suggest many economies

The Fosdick Machine Tool Co.

CINCINNATI, OHIO

5 good reasons for "lowest cost per hole"

Each of the 20 types and sizes of Avey Sensitive Drilling Machines represents absolute minimum drilling cost over many years for these reasons:

1 **Higher capacity;**

2 **Greater accuracy;**

3 **Lower drill cost, maximum high-speed efficiency;**

4 **Wider range of work;**

5 **Lower up-keep and operating costs with longer life.**

Whether it is for one operation only or for a wide range of work, **Avey Sensitive Drilling Machines** are supreme. May we explain in detail why?

Ask for the facts

Avey Drilling Machine Company

Cincinnati, Ohio

Representatives in all principal cities

FOOTBURT

A Single Spindle Footburt Sipp Sensitive Drill

Made in three sizes of single and multiple spindle models

More holes with this machine

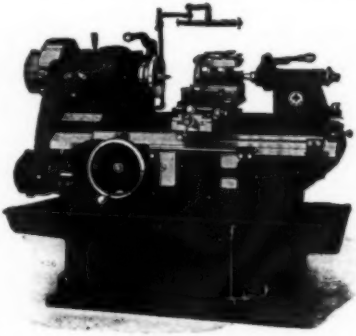
Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

The LeBLOND Multi-Cut Lathe



LeBlond No. 9 Multi-Cut Lathe

The Multi-Cut is a semi-automatic lathe adapted to combined turning and facing cuts using multiple tools. The set-up is very simple and quickly accomplished, there being no cams to consider. The machine can therefore be used profitably on relatively small lots.

Our complete catalog describes the several sizes in detail. We will gladly send it to interested parties.

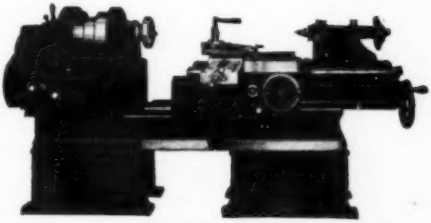
THE R. K. LeBLOND MACHINE TOOL COMPANY

CINCINNATI, OHIO

A Lathe For Every Job

Without Tearing Down and Setting Up

There is hardly a reasonable limit to the work that can be done on this versatile machine. It enables the operator at all times to have a lathe ready for practically any job.



Rahn-Larmon 18"/36" Extension Bed Gap Lathe

Not only is it always ready for practically every job, but it is a real lathe on all of them. It is so sturdy in construction that it absorbs the vibrations of the heaviest cuts.

It reduces to a minimum the amount of equipment required, as well as setting-up time and operating time, in jobbing shops, railroad shops, or wherever there is a variety of work to be done.

It saves in investment cost, it saves in time and labor cost, and it increases output—a combination we are all looking for and one we are fortunate to find. Made in 18"/36", 22"/40" and 28"/50" sizes.

Let us hear from you. Glad to go into the matter of its application to your needs.

The Rahn-Larmon Company

Cincinnati, Ohio

Something No Workman Can Do

It requires the precision of a special machine

The

Grand Rapids Tap Grinder

Grinds taps so that every flute has *exactly* the same angle of taper with just the proper clearance.

This is something no workman can do in grinding by hand.

It saves taps, saves time and insures perfectly tapped holes.

SAVES TAPS. It saves approximately one-half in the cost of taps. It saves the wear of too frequent grinding, because the taps stay sharp twice as long.

SAVES TIME. It saves half the grinding time. It saves tapping time, because the taps cut at higher speeds. It saves assembling time, because nuts, studs, etc., will fit.

INSURES PERFECTLY TAPPED HOLES, because the taps are ground right and with mechanical precision.

Write for the Tap Grinder book.
It tells how to reduce tapping costs while producing more satisfactory work.

Gallmeyer & Livingston Co.

342 Straight Ave., S. W., Grand Rapids, Mich.

Manufacturers of Grand Rapids Drill Grinders, Cutter and Tool Grinders and Tap Grinders. What do you need?

Cutter and Tool Grinders

For All Classes of Work

No. 12
Cutter and Tool
Grinder

The Nos. 10, 11 and 12 give a range of sizes that will take care of any kind of cutter and tool work as well as light cylindrical grinding.

Let us recommend the proper sizes for your work

LANDIS TOOL COMPANY

Waynesboro, Pa.

New York Office: 30 Church Street Detroit Office: 5928 Second Blvd.
Chicago Office: 618 W. Washington Blvd.

Threading 1200 pieces per Hour

These brass wing screws shown are being threaded on our

Standard High Speed Tapping Machine

Let us show you what can be done on your work

Leland-Gifford Co.

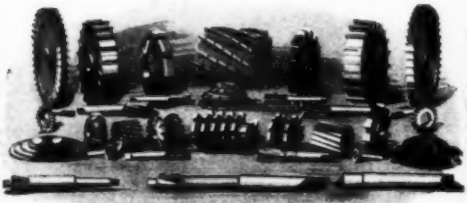
Worcester, Mass., U. S. A.

Branch Offices:

BOSTON
NEW YORK
CLEVELAND
DETROIT
CHICAGO
ROCHESTER

National-Cleveland Cutters
HEAVY DUTY

Gear Shaper Cutters—Hobs—Reamers—Milling Cutters and Special Tools



Quality tools for over 20 years that meet the most severe modern requirements, conveniently located distributing centers that are ready to supply ***what you want when you want it.***

We make special tools to your specifications and carry a large stock of standard sizes for your requirements.

"National-Cleveland" service is no farther away than our nearest office.

The National Tool Company

Cleveland, Ohio

NEW YORK
41 Murray St.

PHILADELPHIA
816 Chestnut St.

DETROIT
5-116 General Motors Bldg.

CHICAGO
624 Madison Terminal Bldg., 9 South Clinton St.

RMCo

The Best "Buy" for

Shaping and Slotting

Within its Capacity

7 in. Shaper Stroke

3½ in. Slotter Stroke

The Rhodes Shaper and Slotter

Look around your tool room and shop and see what a large proportion of your work can be done more easily and quickly on the "Rhodes," which is specialized for handling small work with greater facility and absolute accuracy. You'll find it a big producer, the last word in economy and wonderfully handy.

Ask your dealer or write for
CATALOG H22

The Rhodes Mfg. Company

944 Park Road, -:- Hartford, Conn.

SHAPERS — RHODES — SLOTTERS

Drills to the center of a 10" circle.

Capacity, ⅜" diameter.

Up and down run of spindle, 2½".

Up and down run of table, 7".

$44.00

110 volt, 60 cycle, single phase.

Other voltages on application.

Ready for the Job

Another Original Canedy-Otto Feature

That of first offering an electric bench drill completely equipped and ready for the job, the improved design eliminating the use of all gears and placing the cone pulley in exact alignment, enabling the belt to be run at its maximum speed. It also eliminates all twists and turns of the belt, meaning both a saving of belts and time, giving a greater speed of spindle, a feature of great advantage when using drill for small diameter.

Regular equipment consists of vertical type ball-bearing motor, toggle type switch, extension cord, socket, belting and chuck.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

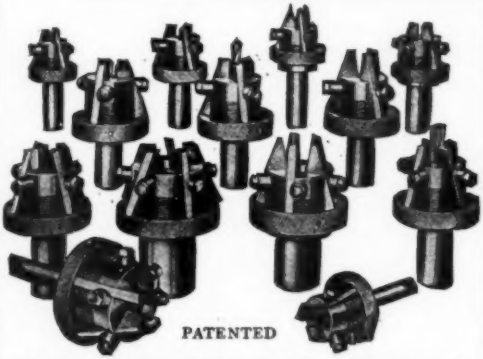
New York Branch
407 Broome St.

Complete stock carried at branches

San Francisco Branch
955 Folsom St.

Saves Your Buying

Many New Tools



Genesee Adjustable Hollow Mill—has adjustable, replaceable blades, which can be replaced at small cost, and this saves you buying many a new tool. They are ideal for finishing forgings, castings, etc. You can adjust them to the 1000th of an inch in a few minutes, and are designed to utilize machines to their full capacity.

Genesees can be fitted with drills and reamers, have formed blades, etc. Blades can be ground any angle to point work and turn short tapers. They cut up to 15" a minute in steel, are stronger than solid tools, and cannot change in size.

Seven sizes cover work from ⅛" to 2". The Genesee is now made in six different styles, from the heavy roughing Style "B" to the accurate finishing Style "F." We also make Style "N" Mills for all Brown & Sharpe Automatics. Write us about your needs—our tools reduce costs.

Genesee Manufacturing Co., Inc.

Established 1908

Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools

Demco Drills

With a Sensitive Drill Spindle that takes up all wear Automatically!

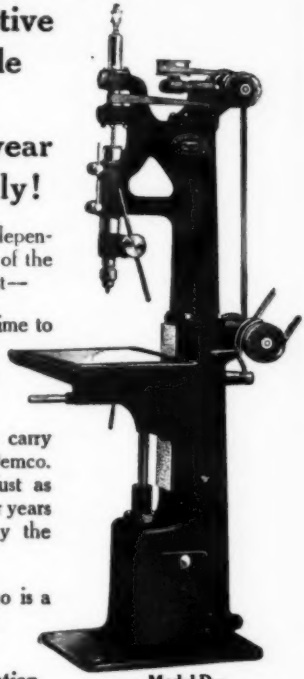
A spindle that is not dependent on the judgment of the operator for adjustment—

That means no lost time to make adjustments and no worn out parts to be replaced.

You do not have to carry repair parts for the Demco. The drill spindle is just as accurate and good after years of service as the day the Demco was installed.

That's why the Demco is a Dependable Machine Tool.

Write for information



Model D—
1 Spindle Floor Type

Merit Oil Equipment Co.

Main Office and Factory:

6616 Morgan Ave., Cleveland, Ohio

Spring Press

(UNIFORM BLOW)

Foot or Power

Single and Double Action

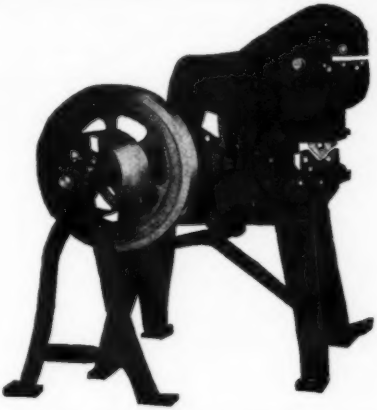
These new dependable Presses are used in large numbers by manufacturers of—

Electric Devices, Toys,
Jewelry, Clocks, Cutlery,
Hardware, Radio Sets,
Instruments, Etc.

The Uniform Blow is a very special feature—it increases production and eliminates costly inspection. Investigate.

The Taylor & Fenn Co.

Hartford, Connecticut, U. S. A.



No. 52—Built in Seven Sizes

BELOIT

Combined Power Punches and Shears

Series 51 to 56

The Beloit Combined Power Punches and Shears offer an unequalled combination of simplicity of design, construction, range of capacity, and moderate initial cost.

Invaluable in any plant for punching, shearing and fabricating steel bars or structurals.

An indispensable equipment for the manufacture of automobile springs and bumpers.

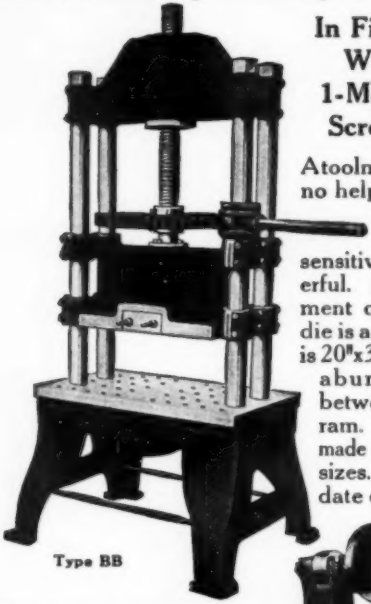
Tell us about your Punching and Shearing requirements. Our line is extensive, and we have a Beloit Machine for your work.

Send for our new catalogue No. 11 which describes the Beloit line of Punches, Shears and Bending Rolls.

Hendley & Whittemore Co.

100 S. State St., -:- -:- BELOIT, WIS.

Save Many Costly Hours—



Type BB

In Fitting Dies With Our 1-Man 4-Post Screw Press

A toolmaker requires no help in handling any dies. Machine is sensitive, rigid, powerful. Perfect alignment of punch and die is assured. Table is 20"x36", and there's abundant room between bed and ram. Press is also made in three smaller sizes. All up-to-date cost reducers.

Surface Grinder

Is accurate, runs silently without chatter. Both feeds have graduated dial. Has all latest adjustments and attachments.

Details and price on request

JARECKI MACHINE AND TOOL CO.

Dept. A. GRAND RAPIDS, MICH.

For Sawing Solid Bars, Beams, Channels, Angles, Tees, Etc. For Accurate Die Work, Tool Room Work and All Kinds of Shop Sawing, Use the MARVEL METAL BAND SAW No. 8

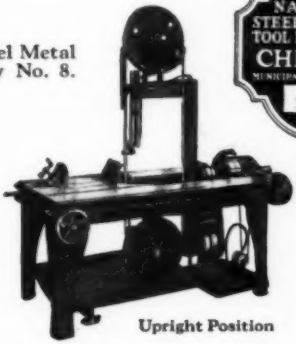
It cuts off square and true, and will also cut on an angle right or left without swinging the bar around the shop.

CAPACITY up to and including **18 INCHES**

Write us today. Put one of these machines to work in your shop.

WE WILL EXHIBIT
NATIONAL STEEL & MACHINE TOOL EXPOSITION
CHICAGO
MUNICIPAL PIER SEPT. 16-21
BOOTH NO.
193

The Marvel Metal Band Saw No. 8.



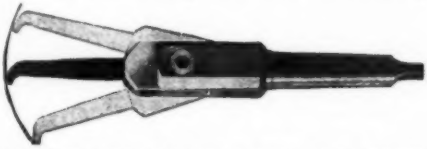
Upright Position

Write today for special circular
Ask for the big list of users

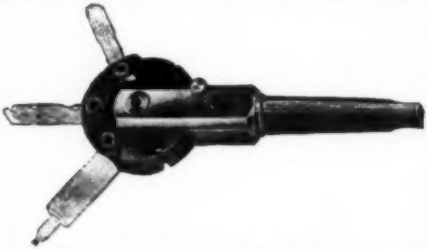
ARMSTRONG-BLUM MFG. CO.
341 N. Francisco Ave., CHICAGO, ILL.

SAVES

Time, Temper and Money



IT COSTS LESS TO USE AN E-Z SET BORING TOOL. Tool or production work on Milling Machine, Boring Mill, Drill Press, Screw Machine or Lathe. Large boring capacity. Rigid, positive adjustment, actuated by a worm; made in three sizes.



WITH THE M-P THREE TOOL TURRET you can convert your bench lathe, engine lathe or speed lathe into a screw machine, or, you may need an auxiliary turret in your screw machine.

Send for a circular

We want live wire mechanical salesmen.

Manufactured by

The Maxwell Products Co.

Ottawa & Indiana Ave., Cleveland, Ohio

Ettco

New All Hardened Drill Chuck

To keep pace with the demands for Increased Production and Lower Maintenance Costs, Ettco Drill Chucks are now being made with All Hardened Steel Parts. They are stronger and better.

1. *Lighter in Weight.*
2. *All Hardened Parts.*
3. *Keyless.*
4. *Hand Operated.*
5. *Ball Bearing.*
6. *Continuous Grip.*
7. *Simple Construction.*

Seven good reasons for using the new Ettco.

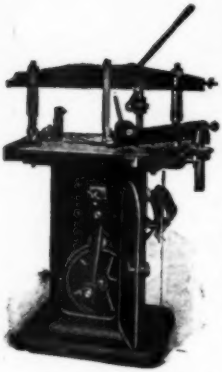
Cash in on your old Drill Chucks. Send them to us and we will allow 15% on the exchange from the following list prices:

No. 1A	Ettco— 0 to ¼ in.	$ 5.50
No. 1½A	Ettco— 0 to 5/16 in.	6.00
No. 2A	Ettco— 0 to ⅜ in.	6.50
No. 3A	Ettco— 0 to ½ in.	9.00
No. 3½A	Ettco—⅛ to ⅝ in.	11.00

Ettco Chucks increase the value of electric drills

Eastern Tube & Tool Company

600 Johnson Ave., Brooklyn, N. Y.



Rapid Keyseating On the "Davis"

Equally profitable for the manufacturing plant and jobbing shop. It has the speed for economical quantity production, and is quickly set up for each item of a run of mixed work.

PLEASE READ THE TABLE BELOW

Sample of Cutting Time on Gears

Size of Blank	Kind of Stock	Size of Keyway	No. at 1 Chucking	Cutting Time
3¼"x¾"	Steel	3/16"x3/32"	3	1 min. 30 sec.
6¾"x1⅞"	C. Iron	¼"x⅛"	1	20 sec.
2 5/16x9/16"	Steel	¼"x⅛"	4	40 sec.
3"x4¾"	Steel	5/16"x5/32"	1	1 min. 40 sec.
3"x7/16"	C. Iron	⅛"x1/16"	4	30 sec.
Oil Groove	C. Iron	⅛"x2⅞"	1	30 sec.

THE "DAVIS" is made in two sizes to cut 1-16th to 1-inch keyways in pulleys, gear blanks, bell cranks, crank handles, etc., etc., and for slotting, oil grooving and work of a similar nature. It is simply designed, ruggedly built, and a big producer on all classes of keyseating. Can equip for motor drive.

Let us mail you the Folder, which contains a lot of interesting, practical information

Davis Keyseater Company

255½ Mill St., Rochester, N. Y., U. S. A.

PEERLESS

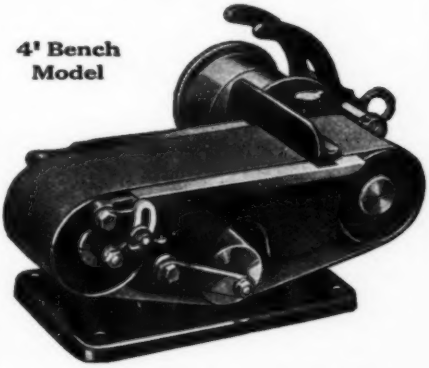
SURFACING MACHINES

for

Grinding and Finishing

Flat Work

4' Bench Model



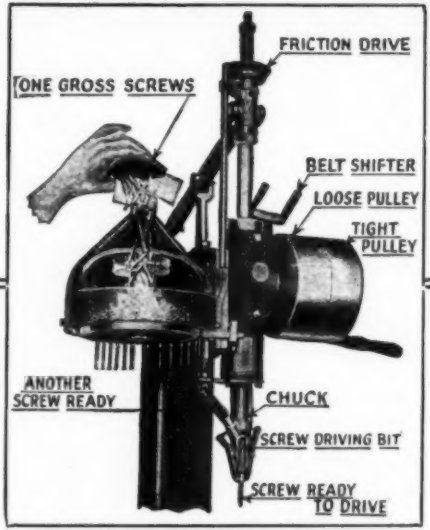
Larger Machines in Both Horizontal and Vertical Styles

SEND FOR FOLDER

PEERLESS SURFACING MACHINE CO., Inc.

TROY, N. Y.

High Gear Screw Driving



Magazine Feed of the Reynolds Automatic Screw Driver

THE MAGAZINE FEED will put your screw driving into high gear. It does away with all human labor in handling screws and leaves the operator's hands free to handle the work.

No wonder a boy or girl easily drives 800 to 1,200 screws an hour, and an experienced operator much more, with mechanical precision.

Tell us dimensions over all of your work and length and gauge of screws used, and we'll explain fully how to put your screw driving into high gear.

The Reynolds Machine Company

Dept. H. H., Massillon, Ohio

"Better Equipment Saves Money—"

That is why you should install the

"Rarefied" Dust Collector

—often saves 40% in power;

—repair costs are practically nil;

—operated on partial vacuum principle;

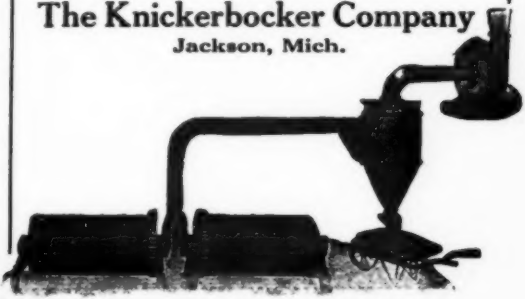
—has made good in some of the biggest plants in the country—one is now using thirty-four!

List of big users—our explanatory booklet—an estimate by our experienced engineers—all gladly furnished on request. And it places you under no obligation whatever.

Draw up your chair and let's talk it over

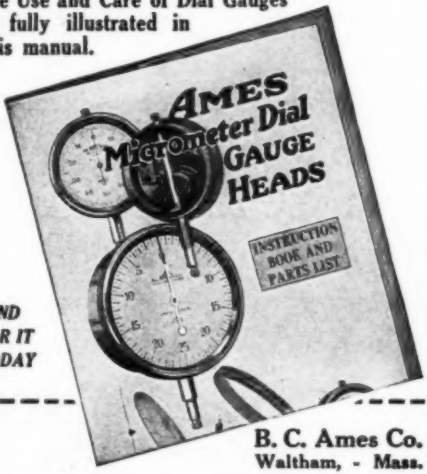
The Knickerbocker Company

Jackson, Mich.



Send for This FREE Text Book

the Use and Care of Dial Gauges is fully illustrated in this manual.



SEND FOR IT TODAY

B. C. Ames Co.
Waltham, - Mass.

Please send me a free copy of the DIAL GAUGE INSTRUCTION BOOK

NAME.....

ADDRESS.....

H o.....

In Three Minutes—

A Catlin Cuts a Keyseat 6"x1"x7/16"

Many other time-saving examples could be cited to show what is being done with this up-to-date, rapid keyseater in the run of an ordinary day's work.

Simplicity is the keynote of all Catlins—they contain less than half the number of parts of other keyseaters. And ordinary help soon becomes expert with them.

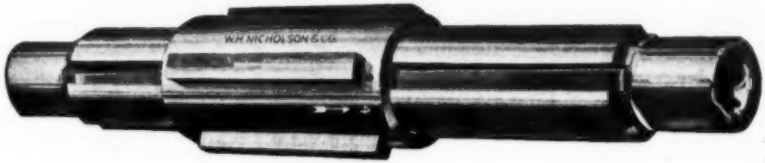
Nos. 0, 1 and 8 Keyseaters have crank motion. All other sizes have the rack and pinion drive. On some classes of work it is possible to keyseat piece after piece without clamping down the work or stopping the machine.

The Picture shows the No. 1 Catlin, belt driven, with three-step cone pulley. Our other sizes, for belt or motor drive, cover practically all keyseating requirements.

Favor us with your inquiry. We shall be glad to mail the interesting folder and answer your questions.

Chattanooga Machinery Company

2401 Bennett Ave., Chattanooga, Tenn.



A job can be placed so it overhangs the jaws on this mandrel, which permits the facing down of the side without the turning tool damaging the mandrel. You cannot do this on a solid mandrel. *Write us for further information and prices.*

W. H. Nicholson & Co., 117 Oregon St., Wilkes-Barre, Pa.

HARDINGE

CATARACT LINE

Cataract Lathes embody the highest standards of Quality, Workmanship and Service.

Catalog on request

Hardinge Brothers Inc.
4149 Ravenswood Ave. Chicago Ill.

Cleveland Open Side Planers

The Striking Advantages of CLEVELAND OPEN SIDE PLANERS is one of the causes of the many repeat orders. Over 1070 installations.

Send for descriptive circular

Box Tables; Improved Head Clamp; Power Rapid Traverse; Self Oiling Bushings throughout Drive; Counterbalanced Side Head; Single Turn Rail Clamp; Automatic Trip to Rail Raising Mechanism. Forced Feed Lubrication to Vees if desired.

26' to 72'

The Cleveland Planer Co., 3148 Superior Avenue, CLEVELAND, OHIO

Established in 1900

Save Time Setting Gang Milling Cutters

Eliminate Thin Washers

Hardened and Ground

PATENTED

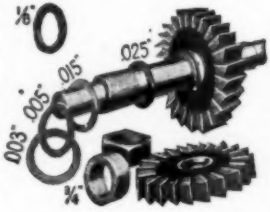
"Wear-Ever" Adjustable Spacing Collars
permit setting cutters to the thousandth part of an inch without removing from the arbor.

Stock sizes for ¾" to 2½" arbors, sent on approval
They are adjustable in 12 steps of 2/1000 inches

SCULLY-JONES & CO. *TOOL DIVISION*
13th and Robey Streets **CHICAGO, ILL.**

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: ⅜, ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1⅜, 1½, 1⅝, 1¾, 1⅞, 2, 2¼, 2½, 3, 3½ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company

3443 West Fort St., **Detroit, Mich.**

GITS BROS.

Standard of Comparison

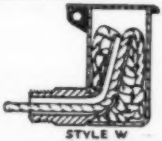
Better Oilers

Quality-Schedule Delivery-Price

Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing.
Wire Wick Feed—gives desired prolonged feed.
Wire Wick—replaces waste or felt.
Made in Standard sizes.

STYLE WC
7 SIZES


STYLE W
8 SIZES

STYLE WT
3 SIZES

STYLE A OR C
11 SIZES

STYLE OG
7 SIZES

STYLE WY
5 SIZES

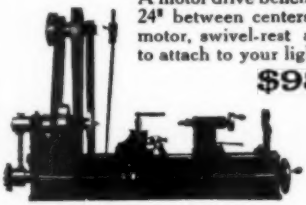
Catalog Sent on Request

Gits Bros. Manufacturing Co.

1940 S. Kilbourn Ave. Chicago, Ill.

Just-Rite Lathes

Made in Sizes from 10-in. to 20-in.



Has Power Feed

A motor drive bench lathe, 10" swing, 24" between centers, complete with motor, swivel-rest and pan, ready to attach to your light socket.

$98

JUST-RITE for turning, boring, milling and drilling (not screw cutting).

Order one by express. Weight, 230 lbs.

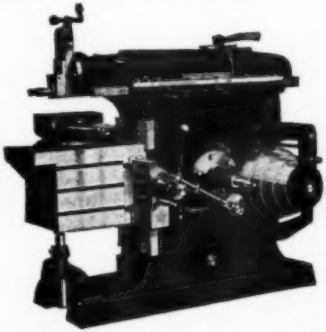
A. V. Carroll Machine Tool Co., Norwood, Cincinnati, O.

SHAPERS

12", 14", 16" Plain Crank, 16", 20", 25" B. G. Crank, either Cone Driven or through Speed Box.

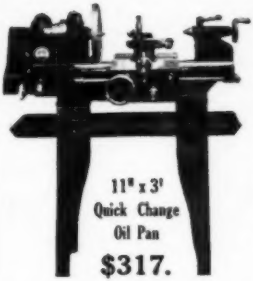
Belt Shifter Regular Equipment All Cone Driven Shapers.

32" Back Geared Crank, Single Pulley Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.

Monarch Jr. Lathes



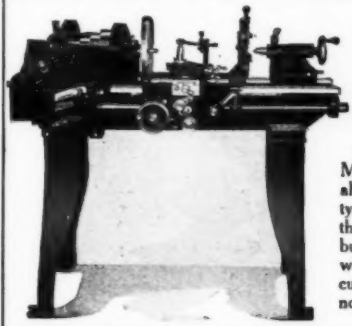
are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.

206 Oak Street, Sidney, Ohio



Another Sidney Lathe

Our 11" x 4' Medium Pattern, all geared head type. It is up to the minute with built-in features which insure accuracy and economical service.

Write for catalog and prices on the complete line of Sidney Lathes. Address Dept. 1801

SIDNEY SERVICE

The Sidney Machine Tool Co.

Sidney, Ohio

S. & S. 10" Vernier Caliper

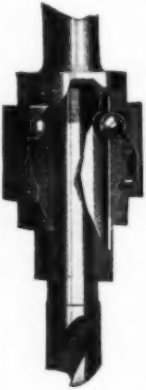
Optical lapped finish of measuring surfaces; open face slide, finest tool steel, glass hard. Verniers reading 1-1000" and 1-128". $12. Ask for our ***Free Trial*** proposition. ***Shop Agents wanted everywhere.***

S. & S. Spring Taper Sleeves

salvage tools with broken tangs instantly. No fitting necessary. Just slip over defective shank and tool is ready for use again.

SCHUCHARDT & SCHUTTE of NEW YORK

GEORGE SCHERR CO., 142a Liberty St., NEW YORK



"Titan" Positive Drive

Quick Change Drill Chuck

THE "TITAN" has the good features of other drill chucks, plus two special features, which make it the perfect chuck:

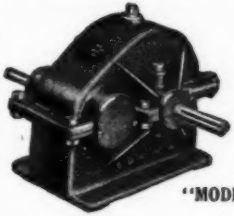
(1) ***Quick Change:*** Simply strike the end of drill, and out it comes. No hammer or special device required. A one-armed man can do it.

(2) ***The Broken Tang Collet*** is as positive a drive for broken tang drills as though they had never been broken. The saving is obvious.

The "Titan" saves time and costs
Write for descriptive price list

Titan Tool Company
Erie, Penna.

DO BOTH!



Reduce speed and costs, with standardized Speed Reducers.

Get copy of
"MODERN SPEED REDUCTION"

BOSTON GEARS

BOSTON GEAR WORKS SALES CO.
Norfolk Downs, Mass.
BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO

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BIAX
Flexible Shaft

machines are made for drilling, boring, grinding, polishing, screw-setting, nut-setting, and similar operations. They may revolutionize your shop practice to splendid advantage.

Even if new to your industry, tell us about your work and let's investigate it together impartially. Our time is yours. Glad to hear from you.

Biax Flexible Shaft Company
136 Liberty Street
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Mid-West Distributor:—Tachometer Division Elgin National Watch Co., Chicago, Illinois.

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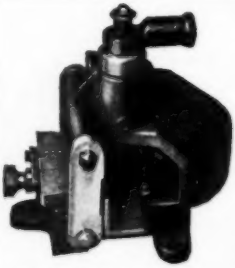
COLLETS

Standard in the United States

An experience of 30 years enables us to guarantee the quality, accuracy and workmanship of "HARDINGE" Thrust Collets and Draw Back Chucks. We will also make them to your exact specifications. ***Glad to send you full data.***

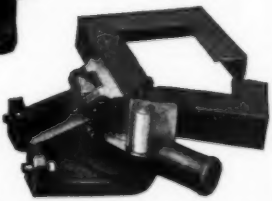
Hardinge Brothers Inc.
4149 Ravenswood Ave. Chicago Ill.



No. 50 and No. 51 Angle Iron Notcher and Bender

Either can be used individually

Capacity, will Shear Mitre in 2"x2"x¼" Angle Iron



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WHITNEY METAL TOOL CO.
95 Forbes St.
ROCKFORD, ILLINOIS

USE the CHICAGO No. 2

POWER PIPE THREADING MACHINE

For
Production and Precision Threading

PORTABLE

Capacity:
¼" to 2" Pipe
½" to 1½" Bolt

Featuring:
1. Quick Die Change
2. Automatic Die Head
3. Three Speeds
4. Perfected Oil Control

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Chicago Pipethread Machine Co.

Office and Factory: 1623 Racine St., Racine, Wis.

A Positive Quick-Acting Lock

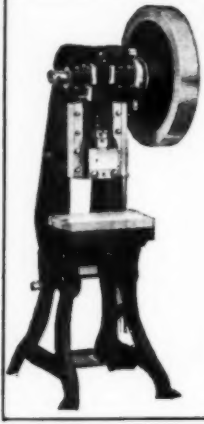
For Adjustable Quickly-Opened Dies

Instead of Clamps, Levers, Screws or Nuts that must be strained or pounded to make them hold threading dies in position.

Dies adjust for variations and open quickly for removal.

That is one great difference between the "DUPLEX" DIE STOCK for pipe and others of the same type; but there are several more points of difference and value.

THE HART MFG. CO., 2319 E. 20th St., CLEVELAND, O.



Husky, Powerful

speedy Punch Presses deliberately designed for High Production work.

All Types and Sizes

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Rockford Iron Works

Rockford, Ill.

T. H. L. Punches

Are Correct
—in—
Every Detail

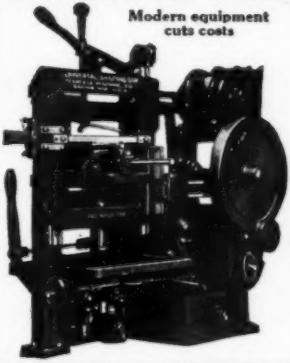
The material is right and they are made right. Our experience of over 35 years is behind every one of them, insuring the most profitable and satisfactory service. Try them out, and you'll come again.

Large stock of regular sizes
Special sizes quickly made

T. H. Lewthwaite Machine Co.

311 East 47th St., *(Est. 1890)* **New York City**

—PEERLESS—
UNIVERSAL SHAPING SAW



Modern equipment cuts costs

Different Principles
Greater Efficiency

Give The Most Of—

Speed
Accuracy
Blade Economy

SIZES:
6"x6"--9"x9"--13"x13"

PEERLESS
HIGH SPEED HACK-SAWS
6"x6" 9"x9" 13"x16"
Sturdy--Efficient--Reliable

Peerless Machine Co.
1609 Racine St.
Racine, Wisconsin
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The BARKER GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines

Steel faced jaws

Graduated to swivel any angle

Extra heavy for hard usage

The screw runs through entire length of vise, with bearing on each end. Nut at rear equalizes strain. Sizes 8" and 12" General Purpose and 16" Mold Makers' Vise. Sturdily built, and so ***exceptionally handy*** that users would not part with them. Be sure to get our literature and prices before buying.

WM. BARKER & CO.

Manufacturer of Machine Tools, **COVINGTON, KY.**

"Borgeson Universal Joints"

Are you a user of Universal Joints?
If so!

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: ⅜, ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾, 2, 2½, 2⅞.

Should you require Special Universal Joints, be sure to write for quotation.

Complete description gladly furnished upon request

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

It Costs Less To Cut

rounds, squares, flats and to

Punch Those Holes

on

"The Bench" No. 3

Combination Shear, Rod Cutter & Punch

CAPACITY ⅝"

$45.00 f. o. b. Phila.

THE BENCH MACHINE TOOL CO.
Makers of "THE BENCH" Tapping Machines
222 N. 13th Street, Philadelphia, Pa.

Milling

In The

Drill Press

Internal Keyseats is its work. These Tools made in 20 sizes. A slick job of Keyseating and rapid.

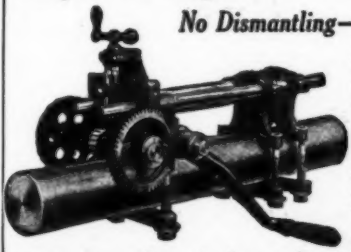
You should not hesitate to send for Catalog O

National Machine Tool Co.

2268 Spring Grove Ave., Cincinnati, O.

Keyseats Right On the Spot

No Dismantling—No Fuss



The BURR Portable Keyseater

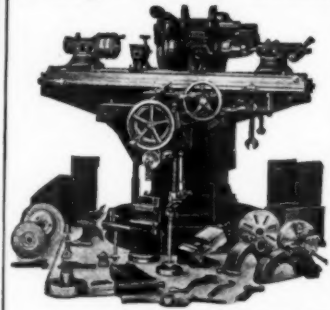
Cuts keyways up to 12" long, in shafts up to 5" diam., anywhere, in any position.

Have one on hand for your next emergency—the cost is often saved on a single job. The seven sizes are ***quick*** and ***accurate***. Hand or power driven. Over 10,000 in use. ***Order yours today and save money!***

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

Perpetually Sharp Tools



This ideal is most nearly realized with the improved

Thompson Universal Grinder

Has no equal for all plain, surface, edge, die, cutter and internal grinding. Capacity is 10"x36".

Write for Illustrated Bulletin today

Manufactured By

THE THOMPSON GRINDER CO., - Springfield, Ohio

BELT GRINDER For flat grinding any kind of a finish on anything. Motor driven from lamp socket. *Write us.*

Two Sizes

THE PORTER-CABLE MACHINE CO., SYRACUSE, N. Y.

Send for this FREE CHART

Rear view showing motor mounting

Capacity 4 in. Can be used as a portable. Not necessary to bolt to floor. Runs from electric light or power circuit. Ask for bulletins on Racine High Speed Metal Cutting Machines of every Capacity to 15 in.

New Improved "RACINE" JUNIOR

WORM GEAR DRIVE direct from motor is now used. All gears enclosed and running in oil. New Improvements in combination with old superiorities make Racine Junior absolutely free from vibration. The quietest, smoothest running as well as the fastest and most accurate metal cutting machine of its capacity.

Use "Racine" H. S. Wood and Metal Band Saw Blades & "Racine" H. S. Tungsten Power and Hand Hack Saw Blades. *Catalog H.*

Racine Tool & Machine Co.

1429 Junction Av., Racine, Wis.

"STANDARD THE WORLD OVER"

"Bridgebilt" Factory Seating and Tool Racks

A diversified line to meet requirements of every branch of industry.

The Bridgebilt line will give long and satisfactory service

For illustrated price list and discounts write—

The Chicago Wire Chair Co.

619 No. LaSalle St., Chicago, Ill.

No. 1010-SWS

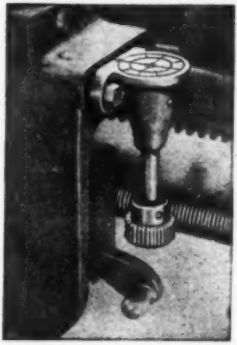
E-Z THREAD DIAL

This device on your lathes will lower the cost of, and increase the efficiency of, thread cutting.

Can be attached to all size lathes.

E-Z to install.

E-Z to use.



Eliminates stopping or reversing the lathe.

Saves cost of backing belt.

Saves power to drive same.

Fast growing in popularity.

A large corporation ordered nine at one time. Another five.

Sent on thirty days' trial.

Send for folder today.

JAMES M. COLVEN, 20 Wolffe Street, Yonkers, N. Y.

FEDERAL

Gauges

Dial Indicators

for Every Purpose

Accurate-Rigid-Lasting

Easily & Quickly Repaired

Federal Products Corporation

15 Elbow St., Providence, R. I.

Thor Electric Drills—

Take 'em to the work

No need to carry the work back and forth. Take the THOR right to the job, plug in on the lighting circuit, and it's ready for use.

THORS have the speed that cuts labor cost and the durability that cuts operation costs. And they are so handy—just push a button to start or stop at will. A ground wire—an exclusive feature—makes shocks impossible.

Write for new Catalog, describing complete THOR Line

Independent Pneumatic Tool Co.
600 W. Jackson Blvd., Chicago, Ill.

Type 6

New "AUTEX" Extension Reel

1926 Model

Don't Forget the Swivel Joint Feature

Permits of carrying the lamp in any direction.

Rapidly finding a place in large Industrial Plants, Machine Shops and Service Stations.

Now equipped with Belden Rubber Cord
Approved by the Underwriters

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

Sent on trial

The Cincinnati

Portable Electrics
Stay on the job.

Hand and Screw Feed Drills ¼" to 2½" cap.
Portable Scotch Radial Drills 1¼" to 2" cap.
Tool-Post Grinders.....¼ to 3 H. P.
Bench and Pedestal Grinders...¼ to 5 H. P.
Hand and Suspended Grinders..¼ to 3 H. P.
Polishing and Buffing Lathes..½ to 7½ H. P.

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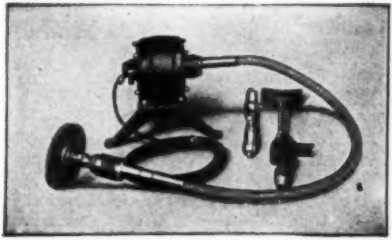
The
Cincinnati Electrical Tool Co.
2678 Madison Road
Cincinnati, Ohio

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy grinding or polishing job



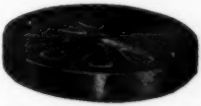
Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St., Philadelphia, Pa.

The Best Since 1876

"D & W" Save Much Time and Labor

Modern—Reliable Flat and Rotary Magnetic Chucks



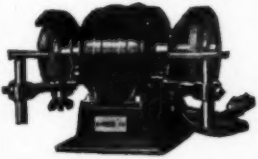
You Will Find our line a revelation in practical efficiency. They hold an immense variety of steel and iron pieces for grinding, planing, shaping, milling. When large quantities are to be machined, the time and labor saved with a "D & W" as against old methods, will very soon pay the entire cost of the chuck. Our attachments convert a flat chuck into a Vertical, Taper or Swiveling type, as wanted.

Special Chucks to order. Folder and price list on request.

J. & H. Electric Co., 161 Clifford St., Providence, R. I.

Don't Be Robbed—

By Dull Tools



BODINE
Portable Electric
TOOL GRINDERS

Make it easy to keep tools sharp

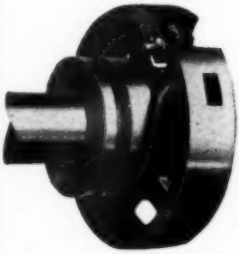
BODINE-BUILT Grinders are equipped with SKF ball bearings, heavy wheel guards, tool rests quickly adjustable to any position, and everything necessary to accuracy, steady performance and ease of handling. A "Bodine" in every department insures sharpest tools throughout the entire plant.

Write for a copy of "Eight Outstanding Advantages"

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

Conway CMT Clutches

Have Only Six Parts



There's nothing simpler or stronger.

The CMT Close Coupled Clutch, shown in the picture, is designed for cramped and crowded installations. It is furnished either single or double.

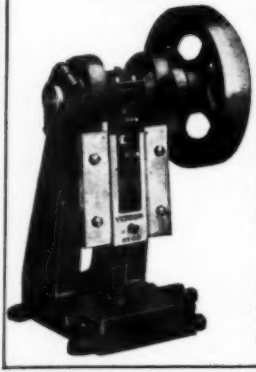
Conway Patented Clutches are made in various types for many purposes—all extremely simple in operation and adjustment, with lots of power and dogged endurance.

Description and prices?

The Conway Clutch Company

1951 Riverside, Cincinnati, Ohio

Trade **Verson** Mark



"Lowest cost per 1000 pieces"

The Verson No. 00, No. 1 and No. 3 are ideal for a large variety of light work requiring accuracy with speed. Rugged and powerful, they can stand rough usage.

The No. 00 shown, occupies only 12x10 in. bench space; it may be mounted on table and legs.

Verson Presses provide a complete line for light work. Don't tie up large presses when these high-grade, low-cost, economical machines can handle your small work much more accurately, quickly & economically.

Ask for catalogue and facts

LaSalle Machine Works

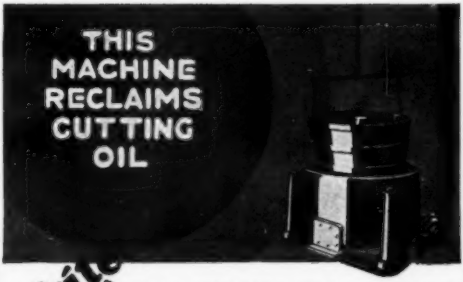
3013 S. LaSalle St., Chicago, Ill.

Specializing in Small Presses and Angle Shears

POWELL VALVES

LET A POWELL BLOW GUN AIR VALVE—
Blow your Turnings or Borings away

The Wm. Powell Co.
2525 Spring Grove Ave., Cincinnati, O.



Write!

TOLHURST Chip Wringers reclaim 6 to 15 gallons per load and handle three or four loads an hour!

Tolhurst Machine Works
Troy, New York

Anderson IMPROVED Ever-Ready Balancing Ways

Balance 'most anything that revolves

Extremely sensitive. Discs accurately balanced. Always ready—need no adjustment—no leveling needed—no centers required. Last indefinitely. The hardened spindles hold their accuracy—don't become indented with ordinary use. Six sizes.

Get the folder and close price.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bead	Bid	Bin	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"

are brought to an absolute *level* in ten seconds. No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

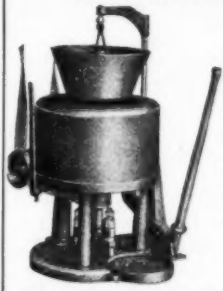
Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

Has Saved Fortunes in Oil

The Curtis Centrifugal Oil Extractor



How was it accomplished? Simply by reclaiming 90% of the cutting oil which otherwise would be carried away on chips and shavings.

The "Curtis" is saving right now from $1,000 to $65,000 a year and even more, depending on the size of the shop. The picture shows our smaller size, belt drive, with a capacity of 10 bushels per hour.

Let us estimate, free of charge, how much a "Curtis" would save in your shop!

The Leon J. Barrett Company

Grafton St., Worcester, Mass.

A RIVETING PROBLEM? LET GRANT SOLVE IT!

Many an awkward riveting job has had to be done by hand until they investigated the

GRANT ROTARY RIVET SPINNER

It is especially adapted to handling pieces of awkward shape and to work in hard-to-get-at places. And besides

It Is Noiseless—

All work is uniform, as tight or loose as desired, with highly polished heads; its speed is a rivet per second, and it may be operated by cheap help.

Write for Catalog and send us a sample of your most difficult work for riveting

The Grant Mfg. & Machine Co.

C. E. Station, Bridgeport, Conn.

IDEAL Electric Automatic Air Compressor and Exhaust PUMP

The single cylinder pump delivers two cubic feet of free air at 300 R. P. M. Quarter H. P. motor required for 200 lbs. pressure.

Price, pump only, $22 50

← SINGLE CYLINDER

TWIN CYLINDER →

The twin cylinder pump delivers four cubic feet of free air at 300 R. P. M. Half H. P. motor required for 200 lbs. pressure.

Price, pump only, $32.50

Our Pumps are used for Spray Guns, Glass Blowing and general commercial and laboratory blowing and suction purposes.

PETRICK BROTHERS
2226 Belmont Ave., Chicago, Ill.

Highest Efficiency With Least Power

And besides that, the "GUSHER" motor driven machine tool lubricant pumps stand up perfectly under the wear and tear of constant, strenuous daily use.

"GUSHERS" are ball bearing, have no gears, no foot or relief valves, no packing nuts, need no priming, and are not injured by grit or small chips.

"GUSHERS" have capacities of 3 to 30 gallons per minute. Furnished with individual motors for any current, also for belt drive.

May we send Catalog and Prices?

The Ruthman Mchy. Co.
528-534 E. Front St.
CINCINNATI, OHIO

A BLESSING For Users of Bar Stock of All kinds

EVERYONE who has pipe, shafting or bar stock about his plant, should have—

"The Handiest Racks"

—for keeping it neatly piled and properly assorted in a fourth the usual space.

PARTICULARLY valuable for ***keeping bar or screw machine stock at the machine*** when working it up into parts or small manufactured articles, saving many steps and much valuable time.

On trial? Sure! Better write today

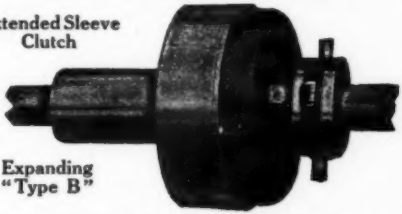
Wm. S. Yohe Supply Co.

503 Mahoning Road, N. E., Canton, Ohio

Edgemont Friction Clutches

For All Transmission Purposes

Extended Sleeve Clutch



Expanding "Type B"

This clutch is designed for driving wood, steel or cast iron pulleys, gears, drums, rope sheaves, sprocket wheels, etc., on the sleeve. Edgemont Friction Clutches are made for all transmission purposes. Glad to advise on your needs—right now.

Edgemont Machine Co., Inc., DAYTON, OHIO

Spindle Speeds to 10,000 R. P. M.

SIGOURNEY No. 0

All Ball Bearing High Speed Sensitive Bench Drill Press

AN UNUSUALLY sensitive drill for accurate work at high speeds. Like all Sigourney Drills, it is sold on quality rather than price. All parts are interchangeable.

Sigourney Drills are made with one to four spindles. They are all extremely sensitive, accurate and durable.

Write for our Booklet today

THE SIGOURNEY TOOL CO., HARTFORD, CONN.

"Utility" Interchangeable

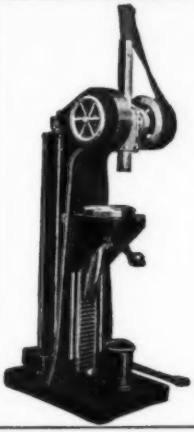
Counterbore and Spot Facer

With the Pilot that *cannot* twist off!

Pilots don't break.
Cutters don't break.
Cutters are easily removed from holders.
Set screws don't come loose.
Cutter drive is simple and powerful.
Counterbore and spot facer troubles practically eliminated.

If you're interested in economy, send for the Catalog. You'll be glad you did.

The J. C. Glenzer Company
6469 Epworth Boulevard
DETROIT, MICH.



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

Write for our Bulletin—showing 30 different sizes

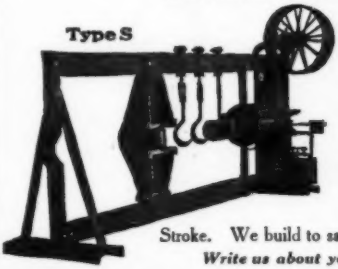
Atlas Press Co.

Department B,
Kalamazoo, Michigan

Lourie Wheel Presses

are made with—

CAST STEEL CROSSHEADS
I-BEAM BUTTRESSES
DIFFERENTIAL PUMPS



There are no better **WHEEL PRESSES**—few as good.

Made in any tons capacity.

Any distance between Strain Bars. Any length of Ram Stroke. We build to save you money.

Write us about your needs

LOURIE HYDRAULIC CO., SPRINGFIELD, ILL.

Handy—Safe—Economical

The "CanTon" Portable Crane, Hoist and Truck

Handy—because one man and a "CanTon" will easily lift and carry what would be a hard task for 6 to 10 men.

Safe—because the new Safety Friction Load Brake can be added at small extra cost to both new and old "CanTons."

The ***Economy*** is obvious.

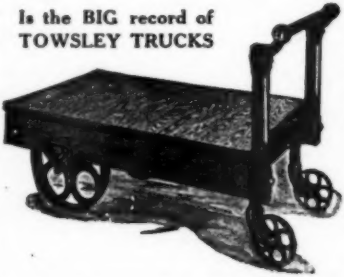
The several sizes are shown in Booklet E-8

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

500% Annual Dividends

Is the BIG record of TOWSLEY TRUCKS



TOWSLEY TRUCKS

repay their cost every two to three months.

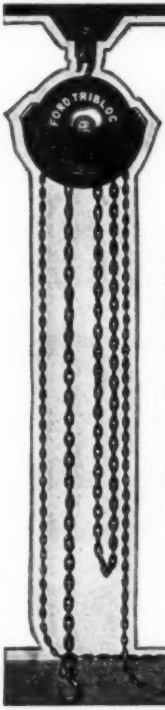
Let us tell you how.

Made in every style for every need.

Write us now about this profitable investment!

John T. Towsley Mfg. Co., Cincinnati, Ohio

TRIBLOC CHAIN HOISTS



Only a few minutes

—but it takes the men from their jobs

Whenever lifting and hauling of loads is done in your shop by machine operators, it means that you pay for not only the time of the men but the idle time of machines, too.

Let brawn of steel do the lifting for these machine operators. Let them use all of their time for the profitable job of keeping the machines producing.

Let us tell you how you can use Tribloc and why it will pay you to install them. Ask for Catalog 7-B.

FORD CHAIN BLOCK CO.
2nd and Diamond Streets,
Philadelphia, Pa.

We also manufacture "THE MOTORBLOC"
—an electrically driven chain hoist.

The Western Adjustable Vise

It pays real profits!

See the seven reasons below

Here are seven of many reasons why it pays:—

(*1*) No limit to number of positions in either elevating or swiveling.
(*2*) Easily and quickly positioned, and one lever locks all swivels.
(*3*) It does not jump or rattle under chiseling or hammering.
(*4*) It handles odd shaped pieces as well as ordinary shapes.
(*5*) Any piece of work can be reached from all directions.
(*6*) It leaves no excuse for spoiled work from not seeing lines.
(*7*) It enables the vise hand to do more work and more accurate work.

Write for Catalog, which describes this superior Vise, as well as Champion Tool Holders, Expanding Mandrels, etc.

The Western Tool & Mfg. Co.
Springfield, Ohio

A RAPID FIRE FILER

Sharp Saws
At 5¢ Each

That is all it costs when RESHARPENED on this machine

SAVES TIME
REDUCES WORK
ADDS EFFICIENCY

That's Why

Amer. Brass have.....19
Continental Fibre.....28
Formica Insulation.....10
and over 100
Newspapers use them

The Model J
at a speed of
70 TEETH A MINUTE
sharpens all medium,
soft or spring tempered
CIRCULAR SAWS
up to 18" in diameter
Teeth from as small as 32 to
1" up to ½" spacing.

Write for Catalog

THE WARDWELL MFG. CO.

Makers of automatic machines for sharpening—Hack Saws, Hard Tempered Band Saws, Milling, Slitting and Screw Slotting Saws and all Woodworking Saws.

Manufacturers of the largest line of Saw Filers made in U. S. A.

108 Hamilton Ave., CLEVELAND, OHIO

Jacob
Chu

Kingsbury Two Spindle Automatic Dial Feed

Single purpose automatic machines often can be emplo
at a big saving of time and cost. Such a one is the drill
machine shown in the illustration, which reduces the pi
rate cost ***from .30 to .06 cents per 100*** in drilling t
small holes in chuck jaws at an angle of 72° with each oth

This is only one of hundreds of single purpose types
automatic drilling machines engineered and built by us fr
standard equipment to effect large savings on a variety
work up to ⅜" drill capacity.

The use of JACOBS CHUCKS as regular equipment
creases the accuracy and usefulness of these machines.

Pleased to estimate on your work
upon receipt of full particulars

KINGSBURY MACHINE COMPANY

This advertisement
interests of good Dril
by the makers of the

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Jacobs Chucks

Dial Feed Drilling Machine

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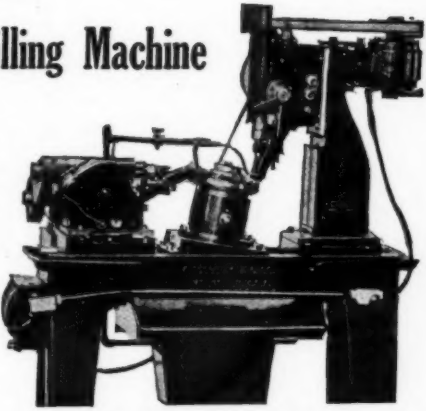
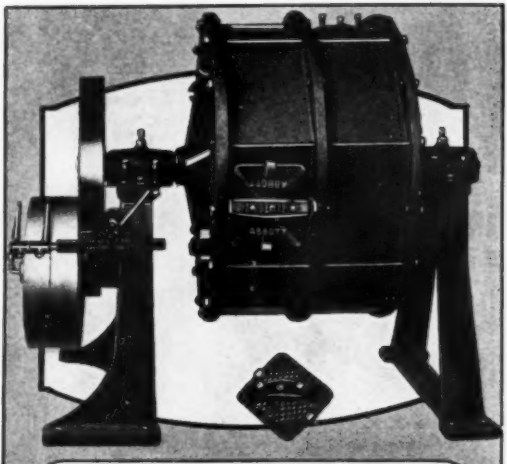


NY -:- -:- KEENE, NEW HAMPSHIRE

ent is published in the
Drilling Equipment
the Jacobs Chuck

Modern tools increase profits



Check-up on Time!

Time is a real factor in modern manufacturing, whether you consider it from a cost standpoint or as regards volume production. Frequently, time required for one operation will slow up the output of an entire plant. Just as often as not, this is in the finishing department. Hand polishing of small metal parts is both slow and expensive. Burnishing by the Abbott Method is much faster and more efficient. It is much lower in cost, and is being successfully used by a large number of leading manufacturers.

The chances are we can show you how you can speed up your production, lower your finishing costs and improve your finish. Send us samples. We'll finish and make complete report and recommendations without obligating you in any way.

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn

from stock

12 types and 97 sizes

completely assembled or in the "knock down"

More than 3000 companies use **Danly Die Sets** as standard equipment. Danly stock room is, in effect, part of their tool room.

Ordering is a very simple matter—by telephone or telegraph, in emergency—by referring to the 34-page Danly catalog. Each of the 12 types is fully dimensioned and illustrated. Compare the convenience of ordering in this way with making your own die sets with all the delay, expense and detail.

You save from 20 to 50% in first cost alone by using **Danly Die Sets**—completely assembled with leader pins and bushings, all working faces accurately machined, ready for immediate mounting of dies.

Even bigger are the savings in use because **Danly Die Sets** eliminate shearing, increase the "pieces per grind" enormously, cut the time for mounting the dies as well as set-up time.

Write for the Danly 34-page Catalog,—the most comprehensive treatise on die sets yet published—standard reference work among some 10,000 superintendents, tool makers and designers, tool room foremen, etc.

Immediate delivery from stock.
Write, wire or 'phone nearest
warehouse for 34-page catalog

Danly Machine Specialties, Inc.

4319 Lincoln Ave., CHICAGO

Detroit, Mich.
1537 Temple Ave.

DANLY STANDARD

Long Island City, N. Y.
35 Wilbur Ave.

No Smoke No Fumes

KASENIT

Non-Poisonous Non-Inflammable Non-Explosive

KASENIT No. 1
For Fine Work and Very Rapid Hardening
Sold in ½ lb., 1 lb., 3 lb., 5 lb. and 10 lb. tins

KASENIT No. 2
For General Hardening
Sold in 25 lb. and 50 lb. kegs

Write for Booklet on hardening. Ask your dealer or write—

KASENIT COMPANY, 122 Liberty St., NEW YORK, N. Y.

Surplus Stock

Of Brand New Standard Makes of

High Speed Steel
High Speed Drills
High Speed Cutters

at 25 per cent lower than present market prices. All material guaranteed by us on a money-back basis.

Your inquiries for Machine Tools are earnestly solicited

George M. Bernstein

549 W. Washington Blvd., :-: Chicago, Ill.

How would you like—

Ettco

to tap small holes as easily as you drill them; to tap them 2 or 3 times faster than usual; to wear out the small taps you are now breaking?

The Ettco High Speed Tapping Attachment usually increases output 100%. When a Gun Tap can be used the increase is as high as 300%.

Try one for 10 days

Try one for 10 days—if you can then spare it, send it back.

Eastern Tube & Tool Co.

600 Johnson Ave., Brooklyn, N.Y.

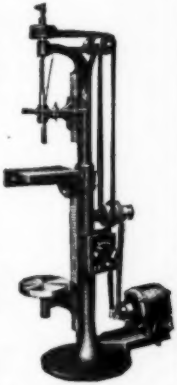
U. S. Sensitive

14" Floor Drill Motor Driven

A simple, rugged, convenient drill, built by machine tool manufacturers. Drills holes up to ½"—quickly, accurately and economically.

Price with motor, switch and belts - $115

Or with Countershaft for Belt Drive $70



Steel spindle, ground to size, with ball thrust bearing; vertical adjustment to head; tables for long and short work; three speeds, etc. Write for folder, or better still, send in your order.

The U.S. Machine Tool Co.

1952 W. 6th St., Cincinnati, Ohio

A BIG Saving—

in Your Drilling Costs

A U. S. Multiple Spindle Drill Head transforms a single-spindle drill into a multiple spindle.

YOU CAN drill two or more holes with the same speeds and feeds you use for drilling one.

Special Heads Made to Order

THEY ALL have patented double adjustment, which permits drilling in any pattern. ***Writing us incurs no obligation.***

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.

Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

When Taps Break—

Work is Delayed
Cost is Increased

Avoid both by having an inexpensive Walton Tap Extractor handy to remove them. Simply give it one or two twists —and the piece is out. No loss of time, no damage to the work.

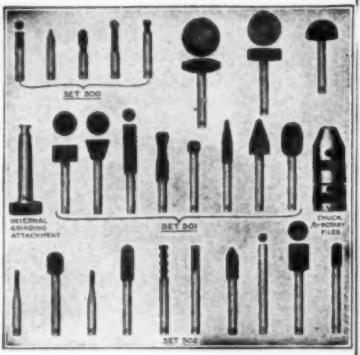
Made in sizes No. 8 to 1¼".

We ship on 60 days' approval.

Did you say "ship"?

The Walton Company
Hartford, Conn.

HIGH SPEED HAND CUT ROTARY FILES



Strand

Rotary Files

Used with Strand Flexible Shaft Machines. Are giving excellent service.

Write for Catalog

N. A. Strand & Co.
5001 No. Lincoln St.
CHICAGO

Winterhoff Portable Production Drills

No. 0 JUNIOR DRILL
10½" Swing, 0 to ⅜" Capacity

$55, F. O. B. Elkhart

Equipped with ¼ h. p. motor, two step cone pulley giving speeds of 1100 and 2300 r. p. m., horizontal drive gives full power to the 1¼" endless belt furnished with machine. Driven cone has bearing support at each end, all parts accurately machined and interchangeable. Positively the greatest value ever offered in a machine of this kind.

Drills, Grinders, Disc Grinders, Saws, Sanders. All motor driven.

Send for circulars describing these machines or see your Dealer.

Winterhoff Tool & Machine Co.

109 South Elkhart Ave., Elkhart, Ind., U. S. A.

Armstrong Lathe Dogs and Clamps

Drop Forged Steel
All Sizes and Shapes

The Dogs are thorobreds; the Clamps have lots of backbone. Screws are alloy steel.

Complete Catalog Free

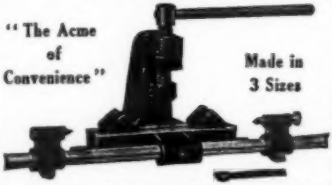
Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

The Springfield Straightening Press

"The Acme of Convenience"



Made in 3 Sizes

Invaluable in the tool room, also for straightening crank and cam shafts and other automobile parts.

A GREAT LABOR SAVER, as you will find the arrangement of this Press makes it the ***acme of convenience.***

Any work within the range of centers may be tested and straightened without unnecessary walking from press to lathe each time in straightening rough or finished work. Any length, however, may be operated upon. Of "Springfield quality" thruout.

Write for folder illustrating many of its uses

The Springfield Machine Tool Co., Springfield OHIO

We also manufacture Engine Lathes and Shapers

Vanderbeek Universal Joints

—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

Write today for our Descriptive Catalog.

American Tool Works, Inc.
Hartford, Conn., U. S. A.

SEND BLUEPRINTS for Quotations on

Hollow Bored Forgings and Steel Shafts

Piston Rods
Clutch Shafts
Lathe Spindles
Rams
Steel Pipes
Etc., Etc.

You'll be pleased with our service

American Hollow Boring Co.
Erie, Penna.

BURKE 10-in. Sensitive Bench Drills

Are considered standard equipment by the majority of the machine tool dealers in the United States.

There must be a Reason

No. 1 Belt Driven $19
No. 1 Belt Driven $22
No. 1 Motor Driven $42 to $47

We also build a 12-inch Bench Drill 9-16" Capacity

No. 1

The Burke Machine Tool Co., 297 E. 16th St., Conneaut, Ohio

No. 2 ALTO Motor Driven Three Speed Tapping Machine

SAVES—time.
SAVES—taps.
SAVES—in the first cost and in the long run.

Its main points are—

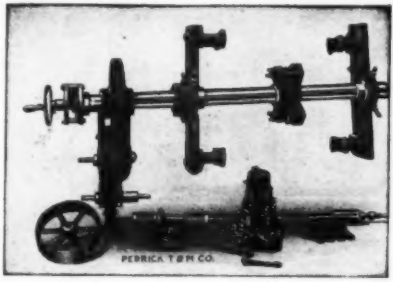
Motor driven, 3 speed, double speed reverse, quick change, back geared multiple disc clutch. Sensitive for small tapping and powerful enough to drive ⅝" taps through steel.

We also make smaller high speed tappers.

Write for descriptive literature and attractive prices

The Alto Mfg. Co., 1647-51 Wolfram St. Chicago, Ill.

Pedrick Portable Tools



Portable Cylinder Boring Bars

For reboring in position locomotive cylinders and piston valves, cylinders of stationary engines, steam hammers, air compressors, and a wide range of other work. Often it finishes a job before it could be gotten into the shop, saving time, expense and costly delays. Its saving on work that is difficult to move is out of all proportion to its moderate cost.

As for durability, we doubt if you can wear out a Pedrick built bar. Many machines we made 25 years ago are still in use.

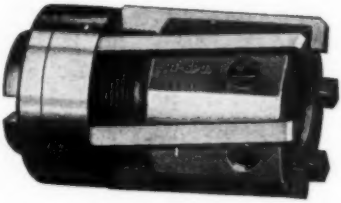
We also build Floor Type Boring Machines, Crank Pin Turning Machines, Pipe Benders, Portable Milling Machines, etc.

Write for the Catalog today

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

"X-L" Adjustable Inserted Spiral Blade Shell and Machine Reamer



Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production. The range of expansion is from .100" in the smaller sizes to .150" in the larger sizes. Made with High Speed Steel Blades.

This is a real production reamer. The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks. All sizes carried in stock.

Catalog on Request

The Schellenbach-Hunt Tool Co.

118 Opera Place, Cincinnati, Ohio

Agents: **Gropler Bros., 105 Hudson St., New York, N. Y.**
E. E. Fletcher, 6007 Euclid Ave., Cleveland, Ohio

Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **$2.50** for name and address. Minimum charge, **$5.00.** No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

Circulation of Machine Tool Blue Book, 25,000.

FOR SALE BY

Nelson Machinery Co., 123-131 N. Pearl St., Green Bay, Wis.

Bending rolls, 5'.
Keyseater, Davis No. 2.
Pipe mche, No. 0½ Merrill, 1" to 8".
Press, No. 4 Rudolphi & K., o. b. i.
Punch press, No. 3A R. & K., o.b.i.
Squaring shr., 30" Kutscheid No. 2.

Air compressors, motors, pumps.

FOR SALE BY

M. A. Wertman Mchy. Co., 505 Superior Bldg., Cleveland, Ohio

Boring mill, No. 5 Defiance horizontal, m. d., guaranteed condition.
Grinder, disc, No. 120 Gardner combination, b. b.
Grinder, double ringwheel, Badger, automatic feed.
Grinder, No. 14 Brown & Sharpe plain.
Milling machines, Nos. 2 and 3 Kempsmith universal.
Turret lathe, No. 6 Brown & Sharpe, wire feed, complete.

FOR SALE BY

Foster Machinery Company, 10203 Quincy Ave., Cleveland, O.

Angle shear, No. 2 Cleveland, 4x4x½" angle.
Boring mill, vertical, 42" Bullard.
Grinder, No. 60 Heald, cylinder.
Grinder, Greenerd, tool & cutter.
Grinder stand, Western No. 4, two 14" wheels.
Lathe, 16"x8' Monarch.
Lathe, 18"x8' Lodge & Shipley.
Miller, No. 00 Brown & S., hand.
Miller, No. 00 Owen, Fox type.
Press, No. 1 Consolidated.
Riveter, Hanna, 24" throat, 15" gap, ⅝" rivet.
Rivet hammers, High Speed No. 3-A and No. 4-A.
Shear, alligator, Canton, capacity 1½" square.
Sq. shears, No. 210-A Pexto, power.
Trolleys, I-beam, 1 & 2 ton.

FOR SALE BY

Edward L. Klauber, 320 South Third St., St. Louis, Mo.

Bolt cutter, Little Giant, 1" cap.
Bolt cutter, National, ⅝" cap.
Bolt cutter, National, 3½" cap.
Bolt cutter, Landis, 2" cap.
Buffers, New Britain, drop head.
Drill, 42" wall type radial.
Drill press, 34", b. g., s. h., t. a.
Grinder, No. 2 Cinti univ. 12x36.
Grinder, B & S. No. 3 cut. & reamer.
Grinder, No. 11 Brown & S. plain.
Grinder, No. 10 Besly disc, ring wh.
Hydraulic press, 7½ ton.
Lathe, 16x5 Hendey, q. c g., t. a.
Lathe, 14"x6' Monarch, d.b.g.,q.c.g.
Lathe, 16"x8' Monarch, d b.g.,q.c.g.
Lathe, 16"x8' Lodge S., q.c.g.,d.b.g.
Lathe, 16"x8' South Bend, plain chge.
Lathe, 21"x8' LeBlond, q.c.g., d.b.g.
Lathe, 26x10 C. M. C., d. b. g.,q.c.g.
Millers, Nos. 0, 1 and 3 Burke.
Planer, American 30"x30"x8'.
Punch press, No. 2 Rockford.
Punch press, No. 3 Toledo.
Shaper, 16" Smith & Mills.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., E. 70th & Mchy. Ave., N. E., Cleveland, O.

BORING MILLS—VERTICAL.

42" King, 2 swivel hds., rapid trav.
44" Baush, 2 swivel heads.
52" King, 2 swivel hds., rapid trav.
54" Colburn, rapid traverse, mtr. dr.
60" Niles, 2 swivel heads and one internal boring head.

BORING MILLS—HORIZONTAL.

3½" bar Rochester, floor type.
3½" bar Landis, floor type.
5" bar Beaman & Smith, floor type.
5" bar Beaman & Smith. Morton floor type boring, drilling and slotting machine.

DRAW BENCHES.

15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20" draw, with 18' extensions for mandrels, heavy cast iron.

DRILLS.

54-spindle 20" Barnes.
5' Bickford, radial.
No. 1, 8' wall radial.

DRILLS—UPRIGHT.

24" Cincinnati, slid. hd., fric. bk. grs.
28" Cincinnati, sliding head.
30" Aurora, sliding head.
32" Cincinnati, with tap. att.
24" No. 25 Foote-Burt, 90%.

FORGING MACHINES AND BULLDOZERS.

4, 5, & 25 Bulldozers.
1" & 2" Forging machines.
250-ton Mesta steam hydraulic, 85%.

GRINDERS.

10x36" Modern univ., and parts.
84" Diamond surface, 85%.
18x96" Norton plain.
Mammoth shear blade cap. 100" long

HAMMERS.

100-lb. Bradley, helve. (3).
350 lb. to 8000 lb. steam forging.
800 lb. to 4000 lb. board and steam drops.

LATHES.

14" to 20" tool room, various lengths.
25"x12' LeBlond heavy duty.
30"x16' Lodge & Shipley selective geared head, arranged m. d.
32"x14' Boyes & Emmes, dbl. b. g.
32"x18' Schumacher, cone head.
36"x12' Bridgeford, grd. hd., mtr. dr.
48"x26' Bridgeford, grd. hd., t. a.
48"—60"x24' Houston, Stanwood & Gamble, grd. head, motor drive.

MILLING MACHINES.

No. 2 Cincinnati universal, with attachments.
Style "B" Gooley & Edlund, (2).
No. 3 Brown & Sharpe, plain.
No. 3B Brown & S., pl., heavy.
Becker miller, model "C," table 14"x54", motor drive.
No. 4 Cincinnati high power miller.

PLANERS AND SHAPERS.

30"x30"x8' Gray, single head.
36"x36"x10' Cincinnati, single head.
48"x48x18' Pond, 4 heads, heavy duty.
72"x72"x16' Betts, four heads.
60"x48"x16' Pond, 2 hds., old style, light pattern.
20" American crank shaper.

PIPE MACHINES AND BOLT CUTTERS.

No. 9½ Merrill, capacity 2½" to 8".
2" & 4" Jarecki, with dies and countershaft, late models.
1½" Landis, single head.

PUNCHES AND SHEARS.

6x6 Hillis & Jones angle shear.
54" gap American ship punch, capacity 1" thru 1".
84" throat, Long & Allstatter capacity about ⅝" thru ⅝".
Kling Bros. horn press, 60" horn, flywheel 50" dia., 6½" face.
48" throat No. 4 Southwark, capacity 2"x1½".
60" throat No. 5 Southwark, capacity 1⅝"x1½".
No. 6 Quickwork rotary shear, capacity up to 1½" plate.
36" throat Lennox rotary shear, capacity about ⅝" plate.

TUMBLING BARRELS.

Several sets 18"x48" chill lined square, with roller bearings and exhaust.

TURRET LATHES AND SCREW MACHINES.

3"x36" Jones & Lamson.
No. 3A Warner & Swasey.
18" Libby, bar and chucking equip.
No. 4 Bardons & Oliver.

MISCELLANEOUS.

Acetylene generator.
Blower, No. 4 Root, motor drive.
Blower, American, 9' fan, motor dr.
Blowers, Sturtevant, motor dr., (2).

Cyril J. Bath & Co.,—Continued

MISCELLANEOUS—Continued.

Boring machine, for cylinders, portable, 4" bar, 7" feed, arranged for motor or engine drive.
Cold saw, 48" Newton.
Gear cutter, 36" Gould & E.
Hack saw, 9" Peerless high speed, quick change gear.
Press, No. 66 Consolidated, 4" str.
Pyrometer, Brown.
Slotter, 48"Niles-Bement-P.,mtr. dr.

FOR SALE BY

Cincinnati Machinery & Supply Co., 215 E. Pearl St., Cincinnati, O.

Machine Tools Worth Investigating.

Bolt cutter, 1½" Landis double spindle, with lead screws.
Bolt cutter, 1" Landis double spindle.
Disc grinder, No 21 Besly 36", complete, with tables and press.
Forcing press, 30-ton Lucas.
Gear hobber, 18-H Gould & Eberhardt.
Lathe, 20"x8' Hendey, tie bar.
Press, No. 8A Rockford straight side, 100 tons.
Radial drill, 7' American, gear box, s. p. d.
Radial drill, 8' American, gear box, s. p. d.
Squaring shear, 72" Streine, power, 14 gauge.
Surface grinder, No 2 Brown & Sharpe.
Surfacing machine, No. 4 Peerless.

Plenty of others in stock; write for circular.

FOR SALE BY

Allegheny Gear Co., • • 1011 Empire Bldg., Pittsburgh, Pa.

Blowers, pressure, Amer. Champ.
Broaching mche., No. 3 LaPointe.
Centering machine, No. 1 Whiton.
Crane, locomotive, 5-ton, 35' boom.
Drill, 2-D Colburn, 24" swing.
Drill, radial, 5' Reed-Prentice.
Forging machine, 2½" Ajax.
Furnaces, heat treating, annealing.
Gear cutter No. 3A Cincinnati.
Gear cutter, No. 12 Brown & Sharpe.
Gear hobber, No. 12 Barber Colman.
Gear shapers, "Fellows" 6, 62, 612.
Gear generators, Gleason bevel, 11", 15".
Grinder, No. 20 Bryant chucking.
Grinder, Landis 12"x66" plain whls.
Grinder, No. 70 Heald internal.
Grinders, wet tool, emery, etc.
Hammers, steam drop, 3000, 2500, 2000, 1500, 1000.
Hammers, steam forging 2500 double frame 1500, 1100, 800, single frame.
Hoists, portable, Crane.
Lathe, 32"x14' Bridgeford, g. h., t a.
Lathe, 32"x10' LeBlond, s. b. g., c. r., t. a.
Lathe, 26"x16' 6" Gleason, d. b, g. c. r., t. a.
Lathe, 26"x10' Walcott, d. b. g., q. c. g., c. r., t. a.
Lathe, 26"x9' Bridgeford, rev. gr hd.
Lathe, 44"x17' LeBlond, b. g., c. r.
Lathe, 18"x10' LeBlond, b. g., c. r.
Lathe, 16"x8' Hendey, s. b. g., q. c., c. r., t. a.
Lathe, 14"x6' American b. g., q. c., c. r., t. a.
Mill, No. 12 9" for variable sections.
Miller, No. 4 Brown & Sharpe univ.
Miller, No. 3 Pratt, hand feed.
Miller, No. 5 Becker, auto. feed.
Miller, No. 6 Becker 62", cone drive.
Miller, No. 4 Pedrick, portable, 12".
Miller, slab, 22"x22" 8' Ingersoll.
Motors, 1, 2, 15, 20, 30, 50 h. p., a. c.
Planer, Bickett 36"x36" 12', m. d.
Planer, 30"x30", table 22"x5', 1 hd.
Presses, Nos. 56 and 57 Toledo, trimming.
Presses, No. 74½ Bliss, trimming.
Sand blast, MacLeod, compl. unit.
Saw, cold, Newton 40" blade, motor drive.
Shapers, 28" G. & E. Invincible.
Shaper, 24" G. & E. high duty.
Shapers, 20" Niles-Bement.
Shear, No. 4 Doelger Kirsten, alligator.
Shear, No. 0 Hilles-J., guillotine.
Shear, No. E Long-Alls., guillotine.
Shear, No. 7 Hilles-Jones, comb. punch & shear.
Slotter, crank, cone drive, table 25".
Turret lathe, 24" Gisholt.

Will quote special low prices.

SECOND-HAND MACHINERY

FOR SALE BY

Schmidtz & Co., - - 35 S. Clinton St., Chicago, Ill.

Drill presses, 3" & 4" sensitive.
Drill presses, 14" to 25".
Lathes, speed, 10"x4" and 12"x5".
Lathe, wood turning, 16".
Lathe, bench, 7½" Van Norman.
Paper cutter, 30" Sheridan.
Screw machine, No 4.
Thread roller, ½" Waterbury-Farrell.

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:

Automatic, 2½" Gridley, single spdl.
Crucible, FD-104 Hoskins.
Grinders, Diamond wet tool.
Lathe, 3x60 Fitchburg lo-swing.
Pipe machine, No. 70 Forbes.
Screw mchs., No. 4 W. & S., g.f.h., (3).
Straightener, No. 2½ Corey.

Exceptional values in USED TOOLS:

Automatic, 1½" model B., Cleveland.
Automatic, 1½" model A., Cleveland.
Bolt threader, 2-spindle Acme.
Cylinder borers, 6-spindle Moline adjustable No. 5, 36".
Drill press, 25" W. F. & John Barnes.
Drill press, 4-spindle Barr sensitive.
Drill press, 2-spindle Barr sensitive.
Lathe, 14"x 6' American.
Lathe, 14"x 6' Monarch.
Lathe, 16"x 8' American, geared head, rebuilt.
Lathe, 16"x 8' Monarch.
Lathe, 16"x10' American.
Lathe, 8x60 Fitchburg lo-swing.
Millers, 3½ Bilton automatic (4).
Miller, 1½ Bilton automatic.
Miller, No. 5 Becker vertical.
Millers, No. 4 LeBlond plain (2).
Planer, 30"x30"x16' L. W. Pond.
Planer, 60"x60"x22' Niles.
Radial, 5' Pond.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster (2).
Turret lathe, No. 2 Warner & S., hollow hex.
Turret lathe, 2½x26 Pratt & Whitney.
Turret lathe, No. 2½ s. g. Garvin.
Turret lathes, 3x36 Jones & L. (3).
Turret lathe, 2x24 Jones & Lamson.
Turret lathe, 21" Gisholt.
Turret lathe, No. 3 Cincinnati-Acme.

FOR SALE BY

McCoy-Brandt Machinery Co., 210-14 Penn Ave., Pittsburgh, Pa.

Bending roll, 8'x¼", drop end.
Bending rolls, 16'x¼" Wickes, m d.
Bending brake, 10'x¼", Chicago.
Boring mill, 36" Bullard. rapid prod.
Boring mill, 6" bar, Niles horiz.
Bulldozers, Nos. 25 & 30 W.-W.
Drills, radial, 5' Prentice, s. p. d.
Forging machine, 3½" Acme, steel.
Forging machines, 2" and 3".
Gear generator, bevel, 8" Gleason.
Grinder, No. 4 Gardner, double disc.
Hammer, steam, 1500 lb. sgl. frame.
Hammer, 1500 lb. Chambersburg steam drop
Lathe, No 5 Rivett precision, tur., etc.
Lathe, 14"x6' Hendey, grd. head.
Lathe, 18"x12' Hollingworth, q.c.g.
Lathe, 24"x26' American, q.c.g., m.d.
Lathes, 26"x12' Putnam, h. d.
Lathe, 30"x18' L. & S., m. d., t. a.
Lathe, 60"x25', cone, cheap.
Millers, horiz., Nos. 2 & 5 Cincinnati.
Millers, Nos. 1 & 2 Cleve. pl., s.p.d.
Miller, vertical, No. 3 B. & S., m. d.
Millers, Nos. 5C and 6 Becker vert.
Miller, No. 6 Whitney, hand
Nut tappers, 10 spdl. Natl., cap. ½".
Pipe machines, 12", 10", 8", 4" & 2".
Planer, 30"x30"x8' N. B. P., 1 head.
Planer, 36"x36"x12' Pond, rev. m.d.
Planer, 48"x48"x16' Putnam, 4 hds.
Planer, openside, 96"x72"x24' D & H.
Punch, multiple, 72" bet. housings.
Punch, multiple, 96" L. & A., 350-ton pressure.
Screw machines, No. 0 Brown & S.
Shaper, 26" Cincinnati, b. g. crank.
Shaper, 24" Hollingw'th, b.g., crank.
Shaper, 24" G. & E., cone.
Shaper, 24" Cincinnati, cone.
Shr., angle, H. & J., cap. 6"x6"x1".
Shear, H. & J., cap. 90x¾" plate.
Shears, guil., cap. 2½" and 2" and 1".
Shear, splitting, 24" tht., Ryerson. ½".
Shear, rotary bevel, Lennox, cap. ¾" plate.
Straightener, No. 2 Abramson.
Straighteners, Nos. 3 & 4 K. & R.
Straighteners, No. 1 K. & R.
Testing mche., 200,000 lb. Riehle.
Testing mche., 100,000 lb. Riehle.
Turret lathe, 3"x36" J. & L.
Turret lathe, 24" Gisholt 6½", h. s.
Turret screw mches., No. 0 Foster.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

LATHES.

24"-40"x12' Greaves-Klusman, gap.
28"x14' Schumacher-Boye, q. c. g.
24"x10' Lodge & Shipley, grd. hd.
20"x12' Hendey, taper attachment.
20"x10' LeBlond.
20"x10' Lodge & Shipley.
20"x 8' Advance, q. c. g.
18"x 8' Morris, q. c. g., dbl. g., (2).
16"x 8' Pratt & Whitney, q. c. g., taper, relieving attachment.
14"x 6' Hendey, taper attachment.
⅞" & 1" Hardinge precision (6).

MILLERS.

24" Bullard vert. rapid production.
No. 1 Brown & Sharpe univ.
No. 00 Brown & Sharpe.
No. 1-V Brown & Sharpe.
No. 2B Milwaukee univ., vert. att.
No. 2 Kempsmith universal.
No. 2 Cincinnati plain.
Nos. 3, 5, 5B Becker vertical.
No. 4 Ohio rapid production.
24" Bullard vertical turret.
24" Colburn vertical.
No. 3 Kempsmith, gr. box fd., plain.
Gooley & Edlund, production.
No. 6 Transit, production.
2½" Twin spline miller, P. & W.

SHAPERS.

24" Stockbridge, sgl. pul. drive, b.g.
21" Smith-Mills, sgl. pul. drive, b. g.
16" Smith-Mills, arr. for motor dr.
16" Smith & Mills, b. g.
20" Whipp b. g. crank.
16" Whipp b. g. crank.

DRILL PRESSES.

Hilbert 3' radial, motor attached.
24" Baker Bros. heavy duty, (3).
24", 26" Aurora, Cincinnati, etc.
Sipp, with comp. tilting table, (2).
1-spindle Sipp, ⅞" cap. (4).
4-spindle Sipp, ⅞" cap. (3).
2-spindle Henry & Wright, 1" cap.
1, 2, 3, 6 sp. Leland-Gifford, ⅞" cap.
Large variety 14", 16", 20" & 24".

GRINDERS.

Bryant internal and chucking, (6).
No. 1 Brown & Sharpe universal.
No. 2 Brown & Sharpe surface.
Cincinnati universal, 4"x57" table.
No. 2 Oakley universal.
No. 1 & No. 2 Norton universal.
4"x20" Norton cylindrical.
10"x20" Norton cylindrical.
No. 4 Gardner ball bear., 24" disc, (5).
40" Besly and Gardner, disc.
No. 65 Heald cylinder.
No. 129 Gardner, ball bearing.
No. 6 Gardner, chuck & disc, 20x42" table, long. and cross feed.
Cincinnati No. 1 universal.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, single spindle.
No. 2 Warner & Swasey pl. hand.
No. 2 Brown & Sharpe semi-auto.
No. 1-G Brown & Sharpe auto.
No. 2-G Brown & Sharpe auto.
No. 00 Brown & Sharpe auto.
No. 6 Foster, power long. & cross.
No. 4 Warner & Swasey universal.
1" & 1½" cap. Acme, b. g., frict. h.
14" Gisholt, motor drive.
Nos. 0, 1, 2, 3 Foster and B. & O.
⅞", 1", 1½", 2" Cleveland auto.
3½" capacity Acme universal.
16"—18" Fox turret lathes, fric. hd.

PUNCH PRESSES AND SHEARS.

100-ton Lourie hydraulic.
No. 33 Toledo.
No. 920 Toledo double crank.
No. 3 Consolidated inclined flywheel.
No. 1½ Bliss, inclined flywheel.
No. 3 Rockford, inclined flywheel.
No. 3 Black & Johnson.
No. 4 Perkins.
No. 4 Bliss-Stiles, geared notching.
No. 4 Bliss-Stiles, geared.
10' Niagara square shears, 20 ga.
⅜" capacity slitting shear.

GEAR CUTTERS.

No. 13 Brown & S., bevel & spur.
No. 1 Standard auto., (6).
Waltham automatic, (4).

MISCELLANEOUS.

Bolt cutter, 1" Landis.
Bolt cutters, ½" Geometric (2).
Bolt cutter, ½" Acme, double head.
Broaching machine, No. 1 LaPointe.
Centering mchs., single and double.
Keyseaters, Nos. 1 & 2 Davis.
Pipe cutter, 3" Hoe & Son.
Reducing or straight. rolls, 6"x36".
Reducing rolls, 11"x22", dbl. g.
Steel corrugating rolls, 7"x26".

FOR SALE BY

Miles Machinery Co., - - - Saginaw, W. S., Mich.

UPRIGHT DRILLS.

20" Lindgren, all geared.
21" Cincinnati, sliding head.
24" Milwaukee, b. g., p. f.
26" Reed-Prentice, b. g., p. f.
32" Superior, sliding head.
24/36" Cincinnati-Bickford, t. a.

DISC GRINDERS.

Gardner No. 14.
Gardner No. 4.
26" Bridgeport.
30" No. 7½ Gardner, m. d.

ENGINE LATHES.

14"x 6' Monarch, q. c. g.
14"x 8' Hendey, t. a.
15"x 6' Carroll-Jamieson, q. c. g.
16"x 8' National, q. c. g.
18" & 26"x6' South Bend, gap.
20"x 8' American high duty.
25"x24' LeBlond heavy duty.
36"x16' Johnson, triple geared.

PLANERS.

28"x28"x 6' New Haven.
28"x28"x 8' Rochester, 2 heads.
30"x30"x 8' Gray, 1 head.
42"x48"x10' Cleveland open side.
48"x48"x10' Niles - Bement - Pond heavy duty, 3 heads.

SHAPERS.

7" Rhodes on pedestal.
14" Davis crank.
16" Stockbridge.
24" Cincinnati.

SHEARING MACHINES.

42"x14 ga. Niagara No. 242 squar.
8'x3/16" No. 896 Niagara squaring.
¼" No. 114 Marshalltown throatless.
½" Marshalltown rotary bevel.
52"x14 ga. No. 252 Stoll squaring.
¼" Kling rotary splitting.
No. 10P Marshalltown rotary.
60" throat, x 14 ga. Pettingell rotary.

TAPPING MACHINES.

¼" Rickert Shafer vertical.
No. 2X Garvin automatic.
No. 2 BG Garvin vertical.
½" Acme 6-spindle semi-automatic.

FOR SALE BY

W. P. Little Co., - West 9th & Front Sts., Cleveland, Ohio

GRINDERS

14" Pratt & Whitney vert. surface.
No. 75 Heald internal, (3).
No. 1 B. & S. universal.
No. 24 Gardner vert. spindle disc.
No. 6 Bryant chucking, (2).
No. 3 Modern universal.
6"x18" Landis pl. self contained c. s.
No. 10 Besly disc, pl. & univ. table.

LATHES.

14"x6' American, q. c. g. and t. a.
18"x8' Blaisdell, semi q. c. g.
16"x6' Bradford, q. c. g. and t. a.
20"x8' Walcott, semi q. c. g.

PLANERS.

22"x22"x 6' Davis & Egan.
26"x26"x10' Pratt & Whitney.
32"x32"x14' Pond, 2 heads.
36"x36"x12' Flather.

POWER HAMMERS.

50 lb. Beaudry, (2).
50 lb. Bradley upright compact.

PUNCH PRESSES.

E. G. 22 Ferracute, grd. arch, m. d.
No. 56 Cleveland straight side.
S. G. 55 Ferracute dble. crank.
No. 3 Cady, Stiles pattern.

RIVETING MACHINES.

Grant spinner No. 80, ¾" cap.
¾" Shuster rotary, elastic blow.
¼" Shuster rotary, elastic blow.
No. 2 High Speed Hammer, m. d.

TURRET LATHES.

2"x24" Jones & Lamson flat turret.
1½" Cincinnati Acme, p. f. to turret.

HYDRO-PNEUMATIC PRESS.

Metalwood hydro-pneumatic press No. H-33, 15-ton capacity.

MISCELLANEOUS.

Reading machine, F-20 Yoder.
Boring mill, 2½" bar Lucas.
Broach, 3-A LePointe.
Cold saw, 20" Burke.
Drill, No. 25 Foote-Burt heavy duty.
Keyseater, No. 0 Mitts & Merrill.
Screw mche., No. 1 Brown & S. auto.
Slotters, 8" & 10" rotary tables.
Spline miller, 2" Pratt & Whitney.
Tapper, ¼" Rickert & S., radial.
Tapper, ½" R. & S. on column.
Wiring machine, No. 1 Magee.

Partial list; send us your inquiries; 150 other tools in stock.

FOR SALE BY

Marr-Galbreath Machinery Co., 58 Water St., Pittsburgh, Pa.

Air compressor 4"x5" Caldwell, 2 cyl.
Angle & bar bender, No. 9 Buffalo.
Angle rolls, K. & R., 6x6x¾".
Arbor presses, Nos. 00 & 1 Atlas (5).
Blowers, pos. pressure, 5" outlet.
Bolt cutters, 1", 1½", 2", 3" & 4.
Bolt cutter, 1½" Reliance, dbl. head.
Bolt cutter, 1½" Acme, 3-spindle.
Bolt cutter, 2" Landis, 1-spindle.
Boring mills, 96" Pond, 2 heads.
Boring mill, 42" Colburn 2 hds., mtr.
Boring mill, 24" Bullard, side head.
Boring mills, Rockford, 2" & 3" bar.
Brake, 4' D. & K., "steel", hand.
Brake, 8'x20 ga. Robinson, hand.
Brake or press, 10' Robinson, toggle.
Bulldozers, Nos. 1, 4, 5 & 7 W. W.
Bulldozer, No. 7 Ajax.
Comp'r, 2500 cu ft. L. D.G., a. c. mtr.
Crane, 40-ton Morgan, 67' span, 4 motors, 220 volts, d. c., new.
Cutting-off mch., 6" Newton, int m.d.
Drill, radial, 5' Prentice, t. a., m. d.
Drill, radial, 4' American, gear box.
Drills, radial, 4' & 5' Bickford.
Drill, 8-sp. Baush, rd. hd., belted.
Drill, heavy gang, 4-sp., 12' table.
Drill, 20" Silver, b. g., fig. 62.
Drill, 22" Aurora upright.
Drill, 24" Aurora, sliding head.
Drill, 24" Barnes, b. g.
Drill, 30" Barnes, sliding hd., b. g.
Exhausters, No. 8 Buffalo.
Forging mch., 1½" Acme, iron bed.
Forging machine, 3" Acme, steel bed.
Gear cutter, No. 11 universal Dwight
Gear cutter, No. 3 S. & C., auto. 1x1".
Gear hobber, No. 4 Farwell, A-1.
Generator, 100 k. w., 240 v., d. c., connected to horiz. steam engine.
Gen'r, 500 k. w., 3/60/2300 to turbine.
Generator, 85 k. w., 240 v., d. c., connected to horiz. steam engine.
Grinder, No. 60 Heald internal.
Grinders, No. 1 Cinti univ., c. & t.
Grinder, 20" Taylor & Fenn, wet tool.
Grinder, Yankee drill, style A.
Hammer, 100 lb., single fr., steam.
Hammer, 2000 lb. Erie, single frame.
Hammers, 40, 80, 100 lbs. Bradley.
Hammer, 125 lb. Bradley upr. strap.
Hoist, pneumatic, Curtis.
Keyseater, 24" Morton, cap. 2½".
Lathe, 42"x32' Am., grd. hd., m. d.
Lathe, 38"x16' New Haven, rag. blks.
Lathe, 24"x10' Pgh., q. c. g., t. a.
Lathe, 24"x10' S & B., q. c. g., t. a.
Lathe, 20"x10' Rahn-L., q. c. g., t. a.
Lathe, 18"x12' L. & S., q. c. g., t. a.
Lathe, 18"x 8' Lodge-S., g. h., pan.
Lathe, 16"x8' Bradford, pl. change.
Lathe, 16"x6' Flather, taper att., ch.
Lathe, 15"x6' South Bend.
Lathe, 14"x6' Monarch, plain change.
Lathe, 14"x6' Am. brass lathe, ck.
Lathe, 12"x8' Reed-P., g. h., s. p. d.
Lathe, 13"x6' South Bend, m. d.
Lathe, speed, 11"x4' Prentiss, t-rest.
Miller, No. 3½ Fox, hand, 24"x6"x14½".
Miller, No. 0½ Cin. pl., 18"x6"x15".
Miller, No. 3 LeBlond, pl. ind. hd.
Miller, Hendey Lincoln No. 2½.
Miller, Knight duplex, tbl. 8½"x32".
Miller, No. 0 Kempsmith universal.
Miller, vertical No. 0 & 1 Bickett.
Miller, vertical, Becker "C".
Miller, bench, No. 3 Burke.
Millers, hand, Whitney, (2).
Motors, 3½ h. p., 220 volts, d. c., 450/1800 rev., (2).
Motor, 2 h. p., 1/60/110/1200.
Pipe machines, 8", 6", 2" Oster.
Pipe machine, 6" Jarecki, s. p. d.
Planer, o. s., 72"x72"x18', 3 hds., m. d.
Planer, 48"x48"x10' Pond, 2 hds.
Planer, openside 42"x42"x16', 3 hds.
Planer, Powell, 42"x42"x16', 4 hds.
Planer, 24"x24"x 5' New H., 1 hd.
Press, No. 1 Toledo, o. b. i., for mtr.
Press, No. 2 V. K. & V., 2300 lbs.
Press, 77½ Bliss, 12" stroke, tie rod.
Press, No. 10 Bliss o. b. i., bench.
Press, No. 11 Perkins, pl. trim., 4" str.
Press, No. 59 Toledo, side shear.
Press, No. 82 Consolidated horning.
Presses, foot, kick, (6).
Punch, No. 124-A Niagara, 15"t., ½x¾".
Punch & shear, No. 51 Beloit.
Punch & s., No. 2 L. & A., 30" tht., a. j.
Punch & shear, 14" & 72" throat.
Riveter, ½" Shuster, style A.
Riveter, 80-A Grant, cap. ½".
Riveter, Allen, jaw, 36x20x1½" rivets.
Riveters, 5-A High Speed.
Saw, Burke, 12" blade.
Saw, cold, No. 18 Wagner, 16" saw.
Saw, cold, No. 11½ Higley, 14" saw.
Screw machine, No. 2 P. & S., p. f.
Shaper, 24" Stockbridge, rebuilt.
Shapers, 24" G. & E. old style, good.
Shaper, 16" Cincinnati, b. g. crank.
Shear, single end, 9" throat, cap. 3½" round, motor drive, new.
Shear, Quickwork, Nos. 3 & 6 m. d.
Shear, Niagara 16-A ring & circle.
Shear, rotary, 4" Lennox, 8' gap.
Shear, square, 10'x10 ga., m. d.
Shear, squaring, 30" F. S. & W., foot.
Straightener, No. 2 Kane & Roach.
Testing mchs., 100,000, 200,000 lbs.
Tumbl'g barrel, Globe, 18"x15", new.
Turret, 24" Gisholt, 6½" h. s., t. a.
Turret, vert. 30" Bullard & Colburn.
Turret lathe, 2x26" J. & L.
Turret lathe, No. 1 Bardons & O.
Turret lathe, 28" Gisholt, t. a.
Turret lathe, 18" B. & O., fr. hd.
Turret lathe, P. & W. bench.
Upsetter, 3" Acme, steel bed, A-1.
Valve tapper, 4" Pottstown, 3-w., m.d.

FOR SALE BY

Bennett Machinery Co., - 30 Church St., New York City

Cold saw, 22" blade, Gleim.
Drills, 24" 28" and 32". Rockford, Barnes and Lodge & Davis.
Lathe, 16"x 8' Davis.
Lathe, 18"x 8' Bell heavy duty.
Lathe, 24"x12' McCabe.
Lathe, 28/48"x14' Harrington, gap.
Lathe, 30/52"x12', with 24" removable gap.
Miller, No. 3 Hendey univ.
Pipe machines, 8 & 10" Cox.
Planer, 54"x12' Pond, 4 head, belt.
Plate planer, 18' Niles.
Radials, 6' Pond, 4' Dreses.

FOR SALE BY

A. M. Stoehr Machinery Co., 560 W. Adams St., Chicago, Ill.

Bolt cutters, 3 & 6-spindle Acme.
Boring mills, 42" Baush; 54 & 60" Niles; all have 2 heads; and others.
Compressors, 12 different sizes.
Drill presses, single spdl., L. & G.; 2-spindle H. & W.; 4-spdl. Foote-Burt; 4-spdl. Barnes; 22" Rockford.
Gear hobbers, cutters; No. 12 Barber-C., 48" & 60" G. & E.; 36" Fellows gear shaper, and others.
Grinders, No. 3 LaSalle plain and surface; 3x18" Norton, and others.
Lathes, 18x8 Barnes, hvy. duty; 19x8 LeBlond, q. c. g.; 16x8 Flather; 15 & 24 spinning, and others.
Milling mchs., No. 25 Becker plain; No. 6 Whitney; No. 0 Rockford pl.; No. 3 Thurston dieing, & others.
Oil extractors, centrifugal, (8).
Pipe machines, 6" Jarecki.
Punch presses, No. 16 Bliss horning; and others.
Punch & shears, No. 3 Long & A., d. e., ½" thru ¾"; No. 14½ W., d.e., 18" throat. No. 1-C New Doty, and others.
Riveters, No. 4-A & No. 5-A High Speed; No. 1 Townsend; No. 1 L. & A., ½" capacity; and others.
Saws, 9x9 Sterling high speed; 12" band, and eight others.
Screw machines, Nos. 2 & 3 Foster (12); Nos. 52 & 53 Acme, others plain and automatic.
Shears, Rock River alligator, 1½".
Tapper, R. & S., ½" capacity.
Welders, both spot and butt.
Wire straightening machines, (5).

FOR SALE BY

J. E. Haetten & Co., Inc., - 50 Church St., New York, N. Y.

Automatics, 00 Brown & Sharpes, serials 1500, (2), each	$ 400.
Automatics, ½-¾" Cleveland model B, (8), each	100.
Boring mill, 48" Rogers, 2 swivel heads, geared feeds	650.
Boring mill, 42" Bullard, 1 turret, 1 swivel head, p. f., r. t.	1500.
Broach, No. 2 LaPointe Hudson enclosed head	250.
Conveyor, 51' Stearns portable 24" belt conveyor	1200.
Drill, 36" Snyder, s. h., tapping attachment, like new	550.
Drill, 7' Cincinnati Bickford, enclosed head, gear box drive	2250.
Drill, 3' Carlton radial sensitive, cone drive, A1	400.
Gear shapers, 36" Fellows, very good, (6), each	450.
Grinder, 6x32 Norton, serial 6640	450.
Grinder, No. 72 Heald internal, hydraulic table	1750.
Grinder, No. 65 Heald cylinder, serials above 500	900.
Grinder, 18x96 Norton plain, belt drive	1250.
Hammer, 200 lb. Gould & Eberhardt, sheave lift	250.
Lathe, 14"x 6' Hendey, yoke head, taper attachment, chuck, A1	650.
Lathe, 21"x 8' LeBlond, geared head, motor drive, A1	750.
Lathe, 16"x 6' Lodge & Shipley, s. b. g., q. c. g	150.
Lathe, 18"x14' F. E. Reed, s. b. g., loose change gear, good	175.
Lathe, 16"x10' F. E. Reed, s. b. g , loose change gear, good	150.
Miller, 30"x30"x16' Ingersoll, fixed rail, 3 spindle, motor arr	2000.
Miller, 36"x28"x20' Ingersoll, fixed rail, 6 spindle, motor arr	4000.
Planer, 22"x22"x 5' Gray planer, 1 head, belt drive	400.
Planer, 24"x24"x 6' Whitcomb, 2nd belt drive	500.
Tapper, No. 2X Garvin plain, A1 condition	275.
Turrets, No. 6-A Potter & Johnstons, (5) each	400.
Turrets, 3x36 J. & L. arranged for bar work (never used)	750.

SECOND-HAND MACHINERY

FOR SALE BY

A. D. White Machinery Co., 108-114 N. Jefferson St., Chicago, Ill.

BORING MILLS.

10′ Pond mill, 2 heads, motor drive.
6′ Pond, 2 heads, motor drive.
36″ Niles, 2 heads, belt drive.
30″ Bullard, 1 swivel turret head.
24″ Bullard vertical turret lathe.
2½″ bar Binsse horizontal mill.

DRILL PRESSES.

No. 1½ Knight drilling and milling machine.
No. 2 Avey ball bearing.
36″ Cincinnati, tapping attachment.
36″ Aurora, b. g., sliding head.
28″ Hamilton, b. g., sliding head.
28″ Aurora, b. g., sliding head.
24″ Cincinnati, comp. table.
20″ Barnes, b. g., tapping attach.
24″ Barnes all geared, 2-spindle.
36″ American sensitive radial drill.
36″ Cincinnati Bickford radial, gear box.
42″ American Tool Works plain radial, gear box.
No. 2 Foote-Burt gang, 4-spindle

GRINDERS.

6″x32″ Norton, excellent condition.
14″x72″ Norton, rebuilt.
16″x48″ Landis crank pin.
16″x96″ Landis plain.
No. 85 Heald internal, (2).
No. 2½ Bath universal grinder.
Pratt & Whitney vertical surface.
No. 3½ Van Norman auto. ball race.
15″ disc grinder, pl. & univ. tables.
Several tool and cutter grinders.

MILLING MACHINES.

No. 3H LeBlond, vertical attach.
No. 3 Kempsmith pl., excell't cond.
No. 3 Cincinnati plain, rebuilt.
No. 2 Cincinnati plain, rebuilt.
No. 20 Ohio plain, rebuilt.
No. 1 Newton slab, 65″ table feed.
Nos. 2B and 2B heavy Brown & Sharpe, single pulley drive, plain.
No. 3½ Pratt & Whitney duplex.
No. 3 Cincinnati high power vert.
No. 5B Becker vertical.
No. 6 Becker vertical, 60″ feed.
No. 25 Becker plain (3).
No. 0 Rockford.
No. 3 Pratt & Whitney die sinker.
No. 6 Whitney hand (3).

LATHES.

14″x 6′ Whitcomb-Blaisdell, c. rest.
18″x 7′ Chard dbl. b. g., rebuilt.
20″x 8′ Lodge & Shipley, grd. hd.
20″x 8′ Hamilton, dbl. b. g.
20″x10′ American geared hd., q. c.
22″x10′ Davis dbl. b. g., quick chge.
34″x10′ Putnam heavy lathe.
38″x14′ Fifield, rebuilt.

PRESSES.

No. 2 American Can horn press.
No. 69 Stoll st. side, grd., 8″ stroke.
No. 666 Toledo embossing press, 1000 ton pressure.
No. 55 Adriance dbl. crank, 2″ str.
No. 169½ Toledo toggle drawing press, used 8 months.

SCREW MACHINES.

⅛—⅜″ Cleveland auto., serial 30000, double cross slides, (5).
2″ Cleveland auto., serial 26302.
No. 1 Garvin hand, ⅝″ cap.
No. 3 Superior hand, 1 5/16″ cap.
No. 4 Milholland hand, 1⅝″ cap.
Kent Owen hand, 1⅝″ cap.
⅝″ Hartford auto., cheap.
⅝″ Cleveland auto., cheap.
1½″x18″ Pratt & Whitney hand, with quantity of equipment.

TURRET LATHES.

3″x36″ Jones & Lamson.
21″ Gisholt, late type.
24″ Gisholt, 6¼″ hole in spindle.
20″ Fay & Scott universal turret.
No. 3 Pratt & Whitney turret lathe, 3″ hole in spindle.
No. 3 Warner & Swasey Fox lathe.
18″ Springfield Fox lathe.
16″ Dreses Fox lathe.
18″ Amer. Tool & Mch. Co. Fox lathe.
22″ Reed turret lathe.
5½″x10″ Potter & Johnston.

MISCELLANEOUS.

Bolt cutters, 2″, 3½″, 4″.
Gear shapers, No. 6 Fellows.
Hammer, 80 lb. Bradley, helve.
Pipe machine, 4″ Saunders.
Planer, 30″x8′ Ohio, heavy pattern.
Planer, 36″x36″x15′ Betts, 2 heads.
Planer, 58″x56″x14′ Gorton, rev. motor, 4 heads, new.
Shear, No. 16A Niagara, ring & circle.
Surface plate, 24″x48″.
Thread roller, No. 119 Bliss, screw c.

Send for latest list.

FOR SALE BY

Badger-Packard Mchy. Co., 133-139 W. Water St., Milwaukee, Wis.

Bolt cutter, 1" Acme.
Brake, 10', 18 gauge.
Gear hobber, No. 12 Barber-Colman.
Hammers, 60 lb. Bradley (3).
Hydraulic press, 80-ton.
Lathe, 24"x12' Putnam, like new.
Potter & Johnston's 6-A, in A-1 condition, (4).

Also other machine tools of various types.
Send us your inquiries.

FOR SALE BY

J. L. Lucas & Son, Inc., - - 3 Fox St., Bridgeport, Conn.

PRESSES.

Surplus stock of large manufacturing plant. All in excellent condition.

50—No. 61 Bliss, 4" stroke.....$225.
2—No. 62 Bliss, 6" stroke.....275.
7—Waterbury-Farrel dial presses 4" stroke.....200.
10—C. & M. Farrel type dial presses, 3" stroke, weight 1200.....200.
80—6" or 8" stroke, weight 2500 lbs.....250.
60—6" or 8" stroke, with ratchet dials, weight 2500.....300.
20—Reinforce swaging machines.....750.

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia, Pa.

Boring machine, 36" Bullard, turret head, vertical.
Die sinker, No. 2 Pratt & Whitney.
Die sinker, No. 3 Pratt & Whitney.
Die sinker, No. 4 Pratt & Whitney.
Drill, 32" Aurora, motor driven, tapping attachment.
Drill, 28" Cincinnati Bickford, geared box drive.
Drill press, D-1 Colburn heavy duty.
Grinders, foundry, Norton heavy duty, (2).
Hammer, 4000 lbs. Chambersburg steam drop.
Hammer, 2500 lbs. Chambersburg steam drop.
Hammer, 2000 lbs. Chambersburg, double frame, steam.
Hammer, 1000 lbs. Chambersburg steam drop.
Hammer, 600 lbs. Cham'burg st. d.
Hammer, 1500 lbs. Erie sgl. frame st.
Hammer, 1000 lbs. Niles-Bement-Pond, double frame.
Hammer, 1000 lbs. Billings & Spencer board drop.
Hammer, Bement-Miles, 300 lbs.
Lathe, 22"x11' Lehmann, geared head, taper attachment.
Lathe, 24"x10' American, taper att.
Lathe, 28"x25' Pond.
Lathe, 25"x30' Harrington.
Lathe, 20/40"x10' Rahn-Larmon extension bed gap.
Milling machine, Newton combination circular milling machine and saw for structural work.
Milling machine, No. 3 Becker univ.
Lathe, 27"x10' LeBlond, with turret attachment.
Milling mche., No. 4B Becker vert.
Pipe machines, 2", 4", 6", 8" & 12" Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x12" Woodward & Powell, motor driven, 3 heads.
Planer, 36"x36"x24', Bement, 4 hds.
Press, No. 54 Toledo gr. str. side.
Press, No. 73½ Bliss trimming press, with side shear.
Presses, Nos. 18, 19 and 20 Bliss.
Press, Chambersburg motor driven trimming.
Punch and shear, No. 3 Hilles & J., dbl. end, motor dr.; punch end, 42" thrt., cap. 1½" thru ½"; shearing end, 36" thrt., cap. 1" plate, 2½" round, 7"x1½" flat, 5"x5"x⅝" angle.
Punch and shear, Pels combination; punching cap. 1" thick; shearing, 2" rd., 2½" squares, 6x6x⅝" angles.
Radial drill, 5' Pond, motor driven.
Radial drill, 5' Bickford universal.
Saw, Newton No. 2 cold saw.
Saw, Espen Lucas No. 10 cold saw.
Shaper, 24" American.
Shaper, 24" Steptoe, back geared.
Shapers, 12", 14", 16", 21" and 24" stroke, assorted makes.
Shaper, 3 Bement-Miles massive heavy duty, traveling head.
Turret lathe, flat, 3"x36" Jones & L.
Turret lathe, No. 6½ Bardons & Oliver, 2½" w. f. cap., cabinet base.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer, - - - 30 Church St., New York City

BORING MILLS, VERTICAL.

16'—16' Niles extension type, b. d.
96" Betts, d. c. motor drive.
90" Niles, friction feed, b. d.
42" Baush, geared feed. d. c., m. d.
72" Niles-Bement-Pond, heavy.
60" Baush, heavy, quick change fds., 10 h. p., d. c. motor drive.
42" Bullard, 1 turret and 1 side head.

BORING MILLS, HORIZONTAL.

6" bar, Bement Miles, floor type.
5" bar, Sellers, floor type.
3" bar, Betts, knee type.
6" bar, Barrett horizontal cylinder.

DRILL PRESSES.

7' Baush tapping attach., box table.
6' Reed Prentice, latest type, m. d.
6' N.-B.-P., semi-universal, m. d.
3' Carlton, radial, belt driven.
No. 310 Baker, high duty, cap. 2½".
28" Mechanics, sliding hd., upright.
6-spindle, 20" Barnes gang drill.
Style "F" hvy. pattern Baker upright

GEAR CUTTERS.

No. 5 Brown & Sharpe automatic.
No. 4 Brown & Sharpe aptomatic.
Gould & E. 24"—36" spur and bevel.
No. 2½ Bilton automatic gear cutter.

GRINDERS.

18"x96" Norton pl., arr. for motor dr.
10"x72" Norton plain, overhead, belt drive, complete equip.
12"x48" Modern pl., standard equip.
10"x36" Norton plain, belt drive
6"x32" Norton plain.
No. 11 Brown & S. plain, 6"x32".
No. 1 Landis universal, belt drive.
12"x60" Landis universal, belt drive.
No. 2 Landis univ., 12"x32", belt dr.

HAMMERS.

1500 lb. N-B P. steam hammer.
1400 lb. Chambersburg steam.
600 lb. Erie steam hammer.
500 lb. Bradley upright helve.
No. 4 type "I" Nazel motor drive.
No. 4-B Nazel hammer, motor drive.
No. 3-B Nazel, arranged motor dr.
500 lb. Standard, automatic drop.

TURRET LATHES.

Gisholt 24" modern, motor drive.
Gisholt 28", modern, belt drive.
Jones & Lamson, 3½"x36" bar equip.
Greenlee 2½"x26", chuck equip.
Steinle 24", new.
Bardons & O., No. 4, wire feed.

ENGINE LATHES.

100"x50' N.-B.-P., modern, m. d.
52"x24' Putnam, triple grd., belt dr.
50"x30' Pittsburgh, q. c., latest type.
50"x36' Bement M., tr. grd. belt dr.
42"x42' Fitchburg, triple grd., b. d.
42"x21' N.-B.-P., triple grd., b. d.
38"x22' Pittsburgh, triple geared.
36"x33' Putnam, triple grd., mtr. dr.
36"x16' N.-B.-P., new, triple geared.
36"x23' Fitchburg taper att., belt dr.
32"x20' Fitchburg, taper att., belt dr.
30"x20' Fitchburg, belt drive.
26"x16' Prentice, geared head, q. c.
24"x28' Fitchburg, taper att., belt dr.
21"x 8' R. K. LeBlond, heavy duty.
17"x6' LeBlond, rapid production.

MILLING MACHINES.

No. 4 Cincinnati plain, cone type.
No. 3-B Brown & S. hvy, plain.
No. 3 LeBlond universal, cone type.
No. 3 Kempsmith universal, comp.
No. 2-Y Brown & Sharpe, plain.
No. 2-B Brown & Sharpe, heavy.
Planer type, Beaman & Smith No. 2.
Mfg. type, B. & S. heavy No. 13.

PLANERS.

120"x144"x25' Sellers.
120"x120"x25' Niles, motor drive.
72"x72"x30' Sellers.
76x76"x16' Pond.
36"x36"x10' Gray type.
30"x 8' D. & H. openside.

PUNCHES AND SHEARS.

Alligator, No. 4 Doelger & K., 5" cap.
Gate shear, H. & J. 74", 1½" cap.
Gate shear, 74" H. & J. ¾" cap.
Multipunch, L. & A. 104", 250 tons.
Schatz triple comb., 1½" capacity.
No. 4 H. & J., dbl., 48" thr., m. d.
Angle shear, H. & J. 6"x1" cap.
Rotary, Gray No. 1—3/16" cap.
Rotary, No. 6 Quickwork, ¾" cap.

ROLLS.

20" Hillis & Jones, cap. ¾" plate.
10" Southwork, cap. 1½" plate.
7' Sellers, cap. ¾" plate.
Straightening, H. & J. 4' and 6'.

MISCELLANEOUS.

Bolt threader, 2" Acme.
Bolt threader, 2" Standard. 2 h.
Core wire straightener, 1/16" to ¼".
Moulding machines, Champion.
Tapping att. Errington, 1" cap.

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Die filing machine, No. 3 Barry.
Drill, 24" Milwaukee, b. g., p. f.
Drill presses, ⅝", 2 & 3 spindle
Gear shaper, 36" Fellows.
Hammer, No. 4A High Speed.
Lathe, 14"x8' Hendey, q. c. g.
Gap lathe, 22/38"x8', solid bed.
Pipe mch., 12" Curtis & Curtis.
Planer, 32"x24"x6' Rockford.
Press, No. 3 Rockford, o. b. i.
Press, No. 5 Niagara, o. b. i.
Prod. lathes, 9" Porter-Cable, (5).

FOR SALE BY

Taylor-Hall Welding Corporation, 5 May St., Worcester, Mass.

WELDERS.

Spot and Butt Welders

We offer rebuilt and fully guaranteed spot and butt welders as listed below:
One No. 0 Toledo butt welder, capacity ⅛" round stock.
One No. 2A Thomson automatic butt welder, capacity No. 8 wire, 1000 welds per hour.
One No. 2A Thomson hand butt welder, capacity ⅛" round stock.
One No. 3 Thomson butt welder, capacity ¼" round, 2"x⅛" flat stock.
One No. 10-A-6 Thomson butt welder, capacity ⅜" round.
One No. 20-A-10 Thomson butt welder, capacity 1½" round or 2" pipe.
One No. 7C Toledo butt welder, capacity ⅜" round or 2½"x½ flat.
One No. 40-A-2 Thomson butt welder, capacity 2" round.
One No. 80-A-1 Thomson butt welder, capacity 1"x7" flat stock.
One No. 21 Thomson automatic butt welder, capacity one thousand ⅛" diameter wire rings, etc., per hour.
One No. 133 Thomson spot welder, 10 k. w.
One No. 137 Thomson spot welder, 10 k. w.
One No. 240 Thomson spot welder, 20 k. w.

FOR SALE BY

Jones Machine Tool Co., 528-532 E. Front St., Cincinnati, O.

LATHES.

16"x 6' LeBlond, q. c. g.
16"x 8' Hendey, q. c. g. & t. a.
18"x10' Reed Prentice, grd. head.
20"x10' Lodge & Shipley, q. c. g.
26"x12' Reed, l. c., t. a.
30"x12' Houston Stam., q. c. g.
30"x16' Lodge & Davis.
32"x12' Boye & Emmes, q. c.

MILLING MACHINES.

No. 1½ Valley City universal.
No. 3 Cincinnati plain.
No. 2 Cleveland, s. p. drive.
No. 3 Brown & Sharpe plain, (2).
No. 3 LeBlond plain.
No. 3 B. & S. vert., s. p. drive.

RADIALS AND DRILL PRESSES.

3' Carlton sensitive.
48" Bickford, cone drive.
72" Niles, cone drive.
72" Dreses, motor drive.
24" Hoefer, stationary head.
24" Rockford, sliding head.
30" Cincinnati, sliding head, t. a.
42" Bickford, stationary head.

PUNCH PRESSES AND SHEARS.

No. 2 Niagara.
No. 3 A Willard, o. b. inclinable.
No. 18 Bliss, o. b. inclinable.
No. 6 Whiting, single end.
No. 4 Bliss.
No. 85 Bliss, d. b. g.

PLANERS AND SHAPERS.

24"x 6' Powell 1 head.
30"x 6' Gray, 2 heads.
48"x36"x12' Cincinnati, 2 heads.
16" Smith & Mills shaper.
25" Smith & Mills, b. g.
24" Kelley.

MISCELLANEOUS.

Bolt cutters, 1" & 2" Acme.
Boring mill, 42" Bullard.
Boring mill, 10' Niles.
Chain hoists, various sizes, (50).
Gear cutter, 48" B. & S. No. 4.
Gear hobber, 24" S. & S.
Gear hobber, Barber-C. No. 12.
Grinder, 10x50 Norton.
Hammer, steam, 800 lb. Niles.
Keyseater, No. 2 Baker.
Slotter, 10" Niles vertical.
Square shear, 62" Robinson 12 ga.

Write for our latest Stock List.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x 6' LeBlond, l. c. g. and chuck.
14"x 6' Hamilton.
14"x 6' American, c. r. and t. a.
14"x 6' Porter, compound rest and taper attachment, l. c. g.
14"x 8' Monarch, c.r., stand. pattern.
16"x 6' South Bend, compound rest, complete.
16"x 8' Lodge & Shipley, old style, compound rest, q. c. g.
18"x 8' Prentice c. r., l. c. g., chuck.
18"x 8' American, 3-step cone, d. b. g., q. c. g.
18"x 8' Schumacher-Boye & Emmes, c. r., 5-step cone, s.b.g., q.c.g.
18"x10' Star, 4-s. c., a. g., with 16" 4-jaw ind. chuck.
24"x12' Lodge & Shipley, patent hd, compound rest, q. c. g., arranged for constant speed motor drive.

TURRET LATHES AND SCREW MACHINES.

No. 2-A W. & S. g. h. tur. lathes.
No. 4 W. & S. g. f. h. universal turret screw machine.
26" Gisholt heavy duty turret lathe.
2"x24' Jones & L. g. h. flat turret.
No. 00 Brown & Sharpe auto., (3).
No. 0 Brown & Sharpe auto. (2).
No. 4 Warner & Swasey, p. h., a. c. and b. f.
No. 2 Warner & Swasey, p. h., a. c. and b. f.
No. 4 Warner & S., g. f. h., a.c. and b. f.
No. 3 Foster g.f.h. turret screw mch., with p. f. carriage and turret.
No. 55 Nat'l Acme 4-spdl. auto., (3).
2½" Cleveland model "A" auto. screw mch., with 5-hole turret.
1¾" Cleveland model "A" auto. screw mch., with 5-hole turret.
18" Libby, factory rebuilt.
No. 2-G Brown & Sharpe automatics (2).
No. 2 Brown & Sharpe turret forming (2).

DRILLING MACHINES.

22½" Cincinnati, sliding head, friction back geared, power feed.
24" W. F. & J. Barnes, sliding head, back geared and power feed.
26" Aurora, slid. hd., b. g. and p. f.
24" Baker heavy duty.
2' arm Fosdick & Holloway plain radial, with t. a.
7" No. 1 Allen sgl. spdl. ball b., (3).
14" 4-spindle Leland-Gifford h. s., b. b. (2).
14" 3-spindle Henry & Wright, h. s., b. b.
14" 4-spindle Henry & Wright, h. s., b. b.

MILLING MACHINES.

No. 0 Bickett, hand, bench type (3).
Toledo hand milling machines.
No. 13-B B. & S. mfg. type, (2).
No. 1-B K. & T. "Milwaukee" plain, constant speed drive.
No. 1 Brown & Sharpe vertical.
No. 22 Garvin vertical, with circular milling attachment.
No. 1-Y Brown & Sharpe plain.

GRINDERS.

No. 1 Brown & Sharpe universal.
No. 3 Brown & Sharpe universal.
No. 2 Brown & Sharpe surface, (2).
No. 10 Brown & Sharpe plain.
No. 6-A Bryant internal.
No. 1 LeBlond cutter grinder.
Type "DE" Hisey-Wolf internal.
No. 11 Brown & Sharpe pl. grinders.
Plain emery wh'l stand with column.

SHAPERS AND PLANERS.

16" Hendey friction, (2).
22"x22"x 5 Putnam planers (2).

METAL CUTTING TOOLS AND SQUARING SHEARS.

Higley cold saw.
3" new Davis cutting-off machine.

GEAR CUTTERS AND HOBBERS.

26" & 36" No. 3 Brown & Sharpe automatic.
No. 13 Brown & Sharpe automatic.
No. 18 Gould & Eberhardt vertical, for spur & spiral.
No. 12 Brown & Sharpe, bevel.

MISCELLANEOUS.

Boring mill, 54" Bullard vertical, 2 swivel hds., rapid traverse, arranged for belted motor drive.
Hammer, Quickwork body hammer.
Centering machines, single spindle Cadillac, (2).
Cock grinder, 4-spindle No. 2 Turner automatic.

SECOND-HAND MACHINERY

FOR SALE BY

Clinton Machinery Co., - - 128 So. Clinton St., Chicago, Ill.
Phone Dearborn 9039

MILLING MACHINES.

No 3H LeBlond, univ., fully equipt.
No. 3 LeBlond plain.
No. 3½ Ohio plain.
No. 2½ LeBlond plain.
No 2 Rockford, s. p. d. univ., fully equipt, slotting attach., vert. head.
No. 1½ Cincinnati univ., fully equipt.
No. 1 Standard hand miller.

LATHES.

18"x8' Hendey with draw-in attach. collets, taper attach. and chucks.
16"x8' Prentice, q. c. g., complete.
16"x8' American, q c.g., swings 18½".
14"x6' Hendey, q.c.g.. complete,(2).
9"x4' Seneca-Falls, complete.

DRILL AND PUNCH PRESSES.

2-spindle Allen, 14".
4-spindle Taylor-Fenn, like new.
Single-spdl. H. & W., b. b., h. s., (3)
22" Cincinnati, wheel & lever feed, b. g., s. h., with tapping attach.
29" Excelsior, b g., p.f., h. & l. feed.
No. 3 Walsh, o. b. i.
No. 3 Swaine, o. b. i., (2).
No. 4 American Can, o. b. i.

MISCELLANEOUS.

Filing machine, Oliver motor drive.
Hammer, 2A High Speed.
Screw machine, No. 1 Warner & Swasey, wire feed.
Screw machine, ⅝" cap., Pratt & W.
Shaper, 14" S. & M. complete.
Shapers, 20" G. & E., b. g., (2).
Shear, 30" power square, 14 ga.
Spot welder, 20 k. v. a. Taylor, like new.

FOR SALE BY

Fitzsimmons & Cole Machinery Company
1208 House Building, - - Pittsburgh, Pa.

Air compressor, Ingersoll 10x10, 156'.
Air compressor, Chicago 12x14", 275'.
Blower, No. 6 Buffalo cupola, b. d.
Bolt cutters, 1½", 2", 2½", 4" Landis.
Boring mill, 42" Bullard, b. d.
Boring mill, 84" Bickford, m.d., new.
Boring mill, 96" Niles, m. d.
Brake, Dreis & Krump, 10'x⅛".
Bulldozer, No. 25 W. & W., m. d.
Drill, radial, 6' Prentice, s. p. d.
Drill, 24" Cinti upright, sliding hd.
Drill, 25" Weigle upright, sliding hd.
Drill, 38" Prentice upright, slid. hd.
Flanger, McCabe, ½" capacity.
Flanging press, 200-ton Southwark.
Gear planer, 24" Gleason, bevel.
Grinder, dbl. emery, wheels 18" dia.
Grinder, 16"x48" Landis, crankshaft.
Grinder, 16"x52" Landis, plain.
Grinder, No. 16 Blanchard.
Hammer, 50 lb. Mayer, upright.
Hammer, 250 lb. Beaudry, upright.
Hammers, 2-B.3-B, 4-B & 4-N Nazel.
Keyseater, No. 1 Catlin.
Lathe, 16"x6' American, q. c. g., t.a.
Lathe, crankshaft, 30"x14' L. & S.
Lathe, 30"x16' L. & S., q. c. g., t. a.
Lathe, 52"x34' Pittsb'gh, 2 car., m.d.
Lathe, turret, 5"x30" Bardons & O.
Lathe, wheel, 42" Niles, double end.
Miller, univ., Oesterlein, 2½x7½x10".
Pipe machine, 2" Williams, m. d.
Pipe machine, 12" Jarecki, b. d.
Planer, 36"x36"x24' Pond, 4 hds, b.d.
Planer, 48"x38"x14' Pond, 4 hds , b.d.
Planer, 96"x96"x20' Pond, 4 hds., m.d.
Planer, o. s., Cleveland, 36"x36"x16'.
Planer, o. s , Cleveland, 48"x48"x20'.
Press, baling hyd. No. 23-P Logemann
Press, Ferracute P-1, 1½" stroke.
Press, No. 37½ Bliss, s. s., 6" stroke.
Press, toggle, No. 1½ Bliss.
Punch, hand, Bertsch H-5, ⅜"x⅜".
Punch, hor., Cleveland, 1" thru 1".
Punch, multiple, No. 5 H. & J., 10'.
Punch & shear, No. 3 Ryerson ⅜ ¼".
Punch & s., Pels Type RBLUEF-26.
Riveter, Hanna, 18" thrt., 15" gap.
Riveter, Allen, 66" throat, 15" gap.
Riveter, stake, No. 6 Whiting, 48" thrt.
Rolls, angle bending, 6x6x½" K. & R.
Rolls, bending, 8'x⅛" Bertsch, m. d.
Rolls, bending, 8'x⅛" N.-B.-P.
Sand blast, MacLeod, 36"x36".
Saw, cold, 24" Higley.
Saw, hack, Atkins 6"x6", b. d.
Shaper, 20" Cincinnati, b. g., b. d.
Shaper, 24" Cincinnati, b. d.
Shaper, 24" Gould & Eberhardt, b.d.
Shear, angle, L. & A., cap. 8"x8"x1½".
Shear, alligator, United, cap. 1½" sq.
Shear, bevel, Marshalltown, ½", m.d.
Shear, plate, United, 10'x⅛".
Shear, guil., No. 3 H. & J., cap. 2½" sq.
Shear, rot., No. 11½ Bliss, 3/16" cap.
Shear, rotary, No. 6 Quickwork, ⅜".
Shear, squaring, Bertsch 8'x14 ga.
Straightener, bar, No. 3 K. & R.
Straightener, beam, No. 4 H. & J.
Straightening roll, 9-roll, rolls 3x42".
Testing machine, 100,000 lbs. Riehle.

SECOND-HAND MACHINERY

FOR SALE BY

McMullen Machinery Company, - - Grand Rapids, Mich.

Automatic, ⅜" Cleveland.
Automatics, No. 00 B. & S.
Band saw, Napier, metal.
Cut-off saw, No. 4 N. & B.
Drill, 31" Barnes, sliding head.
Grinder, No. 6-A Bryant.
Lathe, 2½x26 Greenlee, flat turret.
Miller, No. 2-H Becker vertical.
Pipe machine, 6" Merrill No. 6½.
Press, Chicago scrap baler.
Press, No 3 Manville, d. a.
Presses, No. 6 Manville, pillar, (3).
Presses, No. 6B Manville, pillar, (2).
Shear, No. 14 Pettingell, rotary.
Shear, No. 2 W. F. Co. 36" gang.
Welders, No. 10-A Thomson vert. (7)

Ask for Complete List.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St., St. Louis, Mo.

PRECISION TOOLS.

No. 3 —7" swing Stark bench lathes, (12).
No. 4 —9" swing Stark bench lathes.
No. 3 Langelier swaging machine.
No. 3½ Langelier swaging machine.
No. 1 Dayton swaging machine.

GRINDERS.

No. 4 Brown & Sharpe universal.
No. 50 Gardner, disc.
No. 16 Brown & Sharpe plain.
8" Heald rotary, magnetic chuck.
Washburn twist drill grinder.
No. 60 Heald, cylinder.
30"x84" Diamond face.
No. 1 Fraser surface.
5"x18" Ott.
Schmidt auto. cylinder.

MILLING MACHINES

No. 1½ Rockford plain.
No. 1½ Brown & Sharpe.
No. 1 Knight vertical.
No. 3 Oesterlein plain.
No. 3 Cincinnati plain.
No. 4 Cincinnati plain.
No. 12 Kempsmith.

LATHES.

15"x 6' Monarch, q. c. g.
15"x 7' Carroll-Jamieson.
17"x 7' Oliver heavy duty.
20"x10' Rahn & Mayer.
22"x12' Lodge & Shipley, q. c. g.
26"x12' Putnam.
26"x12' Bridgeford.
26"x16' Whitcomb-Blaisdell.
32"x16' F. E. Reed.
44"x24' Pond, triple geared.

PLANERS.

24"x24"x 6' Powell.
30"x30"x 8' Cleveland, open side.
32"x32"x10' Cincinnati, 2 heads.
36"x36"x10' Flather, 2 heads.
42"x42"x16' Powell, 3 heads.
48"x48"x14' Gray, 2 heads.

DRILLS.

3' Canedy-Otto post drill.
24" Aurora, sliding head.
22" W. F. & John Barnes.
20" Champion.
5' arm Pond radial.
4' arm Bickford radial.
4-spindle Avey.
4-spindle Henry & Wright.

MISCELLANEOUS.

Acetylene generator, 100 cu. ft. cap.
Air compressors, (10).
Belt lacer, Peerless.
Boring mche., hor., No. 2 P. & H.
Buffing lathe, 5 h. p. Reliance, motor driven, 3 ph., 60 cy., 220 v.
Bulldozer, 75 ton Lourie hydraulic.
Gear hobber, 54" Schuchardt & S.
Gear hobber, No. 1 Schuchardt & S.
Gear hobber, No. 1 Farwell-Adams.
Hammer, No. 2-A High Speed.
Keyseater, No. 2 Mitts & Merrill.
Post hammer, Pettingell.
Punch, No. 5 Long & A., 5" throat.
Punch, No. 7 Long & A., 4" throat.
Punch and shear, ⅝ in ⅝.
Riveter, Shuster, model A, ⅜".
Screw machine, 3"x36" Jones & L.
Screw machine, 2"x24" Jones & L.
Screw mche., 1½" Smurr & Kamen.
Screw machines, ⅝" Pratt & W., (2).
Squaring shear, 62", 18" gap, No. 10 gauge.
Tapping machine, No. 1 Garvin.
Tilted turret lathes, Nos. 2, 3 & 4 Wood.
Turret lathe, Libby 20".
Turret machine, 24" Greenlee.
Wheel press, 84", 300-ton.

SECOND-HAND MACHINERY

FOR SALE BY

Hill, Clarke & Co., Inc., - 156 Oliver St., Boston 9, Mass.

PLANERS.

17"x4' Whitcomb Mfg. Co.
22"x22"x5' Putnam.
22"x22"x5' Powell.
24"x8' Whitcomb-Blais, 2 rail heads.
36"x36"x16' D. W. Pond, 2 rail hds.

SHAPERS

28" Hendey, friction.

GRINDERS

No. 1 Diamond, wet tool.
20" Taylor & Fenn, wet tool.
No. 12 Modern plain.
No. 2 Brown & Sharpe, surface, old style.
8"x30" Atlas M. T. Co., plain.

MISCELLANEOUS.

Boring mill, 53" Niles vertical, two swivel heads, late model, like new.
Brake, hand, Peck, Stow & Wilcox 8', cap. 18 gauge.
Broaching machine, Lapointe Machine Tool Co. No. 1.
Broaching machine, Lapointe Machine Tool Co., No. 3.
Cutting-off saws, J.T. Burr No.1(2).
Hammer, steam, 500 lb. David Bell & Son.
Hammer, belt dr., Champion Blower & Forge Co. No. 1, 65 lb. cap.
Shear, New Doty No. 7-B.
Shear, alligator, Canton Foundry & Machine Co. No. 2.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

13"x 5' Blount speed lathe.
13"x 5' South Bend, (2).
13"x 6' Willard, (3).
13"x 6' Sebastian, (4).
14"x 6' Carroll-Jamieson.
14"x 6' Reed, l. c. g., (3).
14"x 6' Reed Prentice plain turning, new, (2).
14"x 6' Prentice l. c. g. engine, (2).
15"x 6' South Bend l.c.g. engine,t. a.
16"x 8' Bradford, l. c. g.
16"x10' Monarch q. c. engine, m. d., with motor.
17"x8' LeBlond rapid product'n, m.d.
21"x11' LeBlond, all geared, (2).
21"x12' LeBlond line bearing.
26"x10' LeBlond crankshaft.
Adams short-cut lathe, with taper.
3½x36 Lo-Swing.

DRILLING MACHINES.

3-spdl. Henry & Wright, h. s., b. b.
22½" Sibley all-geared, p. f.
28" Barnes, s. h., tapper.
25" Barnes 4-spindle gang.
No. 3 Baush multiple.

MILLING MACHINES.

Briggs type A.
No. 32 Kempsmith.
No. 33 Kempsmith plain.
No. 2 Brown & Sharpe plain.
No. 3H LeBlond plain, cone type.

TURRET SCREW MACHINES.

14" Defiance, f. h.
2½x26 Pratt & Whitney, a. c.
No. 3 Foster f. h. turret lathes, (2).

GRINDERS AND POLISHERS.

No. 10 Brown & Sharpe plain.
No. 190 Greenfield universal.
No. 50 Heald cylinder.
20" Blount wet grinders.
No. 15 Bryant, motor drive.
No. 26 Besly, double spindle, m. d.
No. 5 Oliver m. d. drill grinder.
LeBlond plain cutter grinders, (5).
26" Kern, s. h., b. g., p. f. t. a.
No. 1 Lumsden oscillating, new.
No. 11 Lumsden, b. b., cup wheel, new, (2).
10x30 Frazer self-contained.
6x32 Norton plain cylinder.
No. 23-B Valley City disc, new.

MISCELLANEOUS.

Band saw, 6" Napier.
Broaching mche., LaPointe, Hudson make, ⅜" capacity.
Centers, bench, Brown & Sharpe.
Cutting-off mchs., 4" Hurlbut-R.,(2).
Gear generator, 18" Gleason, bevel.
Gear shapers, No. 6 Fellows, (3).
Hammer, drop, No. 5 Williams-W.
Lapping machines, Bethel-Player, new, (2).
Metal cutter, No. 1 Gray.
Screw slotter, No. 1 National Acme.
Shaper, 7" Rhodes horizontal.
Tooth round's, 12" Rochester aut.(2).
Tumbling barrels,No.3-S Globe,(2).

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., - - 3 Fox St., Bridgeport, Conn.

NEW BRITAIN AUTOMATICS

2—New 1—9/16", 6 spindle, latest type, cost each.....$4800—$3600
3—New 1—⅞x7, serials 9000, 95% new, each..... 2500.
3—1x5, 6 spindle, serials, one 6580, three 8700, each..... 1500.
2—No. 3, 6-spindle chucking machines, still set up, serials 9000, each.... 1500.
4—No. 24 chucking, new, never uncrated, serials 6400, each..... 2500.
2—No. 24 chucking machine, rebuilt, with 6 2-jaw chucks serial 6509..... 1750.
1—No. 33 chucking machine, very fine condition, serial 8109..... 1750.
1—New Britain sextuple automatic bar, serial 8791..... 1250.

FOR SALE BY

Tubor, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.

Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 3 Niagara, (3).
No. 4 American Can.
No. 5 American Can (2).
No. 15 Torris Wold.
Perkins punch presses, ½" str. (20).
Long & A. horn punch, cap. 1½x1.
Swaine geared, (2).
No. 5 Rockford, (2).
Bliss bench presses, (5).

DRILL PRESSES.

14" Excelsior.
20" b. g., p. f., new, $130.
20" drill presses (40), each $40.
28" Weigel.
30" Reed-Prentice.
Demco high-speed drills.
Bench type drills.
3½' Hilbert radial.
Drill presses, 1-2-3-4 sp. Avey, h. s.

MILLING MACHINES.

No. 4 LeBlond plain.
No. 4 LeBlond univ., sgl. pulley dr.
No. 2 Cleveland universal, s. p. dr.
A number of hand millers.

LATHES.

16"x 6' Hamilton, q. c., (2).
16"x 6' Sidney, q. c., (2).
17"x 9' Chard, q. c., (9).
18"x 6' Lehmann, q. c., (2).
24"x10' Canadian, q. c., d. b. g., (3).
22"x10' Cisco, q. c.
26"x12' Prentice.
10", 12" and 14" Shepard screw cutting, quick change.

PLANERS.

30"x30"x12' Niles-B.-P., 2 heads.
36"x36"x 7' Flather, 2 heads.

SCREW MACHINES.

Brown & Sharpe automatic.
No. 2 Smith, hand.
Pratt & Whitney, hand, (3).
Nos. 1, 2, 3 and 4 Foster screw mchs.

GRINDERS.

Bath universal, with magnetic chk.
La Salle surface, with magnetic ck.
Gardner No. 6 disc grinder.
No. 14 Besly, disc.
Emery grinders, $2 and up.

WOOD-WORKING MACHINERY.

Band ripsaw, West Side.
Boring mills, Andrew, (3).
Moulders, 8" Yates C-4, (2).
Shapers, Advance dbl. spdl., 5 h. p., a. c. motor in base, (6).
Saw tenoners, Pettingell.
Shapers, double spindle, Whitney and Fay.
Swing saws, Porter, (4).
Saw table and jointer combined, portable.

MISCELLANEOUS.

Buffers, U. S. and Westinghouse, 5 h. p., b. b.
Hack saws.
Motors, 75 h. p. G. E., a. c., slip ring, 600 r. p. m., (2).
Motors, a. c. and d. c.
Pressed steel hangers and bearings, all sizes.
Pressed steel bench legs, (1,000).
Pressed steel stools, with backs.
Punch press, No. 4 V. & K.
Saw mandrels, $3.
Shaper, 15" Niles.
Thread hobber, Pratt & Whitney.
Time clocks, International.
Woodworking machines.

Leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers, Inc., - 67 Water St., New Haven, Conn.

DRILL PRESSES.

15—Myers 10" bench sensitive drill presses, with chucks, brand new. Price $25.00 each, net, f. o. b. New Haven, Conn.
Wire, write or phone.

FOR SALE BY

Carlson Machinery Co., - - - Davenport, Iowa

Used Equipment Bargains

GRINDERS

6x32" Norton plain.
No. 65 Heald cylinder,
No. 2 Gardner disc.
No. 8 Besly disc.
No. 1 Cincinnati univ. tool & cutter.
No. 2 Oakley univ. tool & cutter.
Grand Rapids B-2T drill grinder.
12" Marschke elec. grinder stand.

LATHES

13"x5' Shepard, geared hd., q. c.
14"x6' Hendey, geared head, q. c. taper attach , draw in attach.
14"x6' Hendey, yoke head, q. c., relieving attach., draw-in. attach.
14"x 8' Flather standard.
15"x6' South Bend.
16"x8' Canedy-Otto, semi q. c.
18"x6' Lodge & Shipley, q. c.

DRILL PRESSES

No. 21 Canedy-Otto, b. g., p. f.
No. 21 Canedy-O , wheel & lever fd.
No. 24 Canedy-Otto, bench.
4" Demco ball bearing, 7" overhang.
4" Sipp ball bearing, 8" overhang.
20" Silver, b. g., p. f.

MILLERS

No. 1 Van Norman hand.
No. 1 Rockford plain.
No. 1 Kempsmith plain.
No. 2 Cincinnati universal.
No. 2B Brown & Sharpe, s. p. d.
No. 15 Garvin plain.
No. 2½ Hendey, Lincoln type.

MISCELLANEOUS

Broach, No. 2 LaPointe.
Die filer, No. 2 Cochrane-Bly.
Gear cutter, 72"x20" Cincinnati.
Gear hobber, 24" Schuchart & S.
Hand brake, 72", 18 ga. capacity, Peck, Stow & Wilcox.

FOR SALE BY

Brown Machinery Co., - - 2323 N. 9th St., St. Louis, Mo.

Buffing lathe, Hisey 3 h. p. electric, a. c., 3 phase, 60 cycle, 220 volts.....$ 100.
Buffing lathe, U. S 3 h. p electric, a. c., 3 phase, 60 cycle, 220 volts ... 125.
Drill, 24" Aurora, sliding head, tapping attachment..... 275.
Drill, Baush No. 3 multiple, cap. 30 spdls., rectangular hd. 20x40". Price 1500.
Drill, radial, horizontal, No. 1 Barnes, double end..... 300.
Gear shaper, 36" Fellows..... 500.
Grinder, cylinder, No. 60 Heald..... 850.
Grinder, No. 14 Gardner, b. b., disk, dry, 20" disks, good cond. Price 400.
Grinder, No. 6 Besly two-spindle disk, 20" disks. Price..... 300.
Grinder, No. 1 Brown & Sharpe universal, 10x24; good condition. Price 375.
Grinder, No. 14 Besly single spindle ring wheel. Price..... 400.
Grinders, emery, St. Louis and Western, 100 new at 50% discount.
Hammer, size A United, motor driven..... 350.
Lathes, 16"x8' Monarch, heavy duty, each..... 400.
Lathe, 20"x8' Reed..... 300.
Lathe, turret, No. 4 Wood tilted, g. f. h., power feed, new ..... 650.
Miller, No. 1½ American universal, new.
Miller, No. 1B Fox, hand & pwr. fd., 18x6x14; new, never used. Price.. 350.
Motors, (40): 1 to 40 h. p., 3 phase, 60 cycle.
Planer, 60"x60"x20' Niles, 3 heads.
Polishers and buffers, drop head, New Britain, each..... 50.
Press, geared, No. 5 Stiles & Parker, weight about 9000 lbs..... 550.
Shear, Marshalltown No. 134 rotary splitting, cap. ⅜" plate; 4' throat; arranged for motor drive. Like new. Price..... 600.

FOR SALE BY

Hoosier Universal Machinery Co., - - Goshen, Ind.

Drills, Minster No. 1 D heavy duty.
Flat turret, 3"x29" J. & L., 2-sp., new.
Gear cutter, Cincinnati, spur, 80$.
Gear hobber, Gould & E., 80$.
Grinder, Landis No. 1 universal.
Hammer, Mayer power, 50 lb. ram.
Planer, 24"x24"x14 Chandler No. 10, single head
Radial drill, 3' Am. Tool Works.
Saw, metal, 13"x16" Peerless, motor drive.
Screw machine, Defiance No. 4, new.
Tooth rounding mche., Schuchardt & Shutte.
Turret lathes, J. & L. 2 3/16"x36", bar and chucking.
Turret lathe, P. & W., 1½"x14" swing.
Turret lathe, 24"x8' bed.

FOR SALE BY

Herman L. Winterer, 943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17' 4½" Bement-Miles.
37½"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q.c.g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
28"x10' Niles, q. c. g.,
25"x14' Hendey, q.c.g., taper attachment, oil pan, (2).
24"x14' Porter.
21½"x8' LeBlond.
20"x8'6" Walcott, d. b. g., c. g., (2).
19"x10' Draper, patent head.
18"x 8' Davis, q. c., d. b. g.
18" x 7' Chard, d. b. g., semi q. c. g.
18"x6' to 8' lathes, (6).
And many others.

TURRET LATHES.

3½x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
20x7' 6" Pratt & Whitney, back grd.
20x7' Bridgeport, 2½" h. s.
19"x7' Fay & Scott, back grd.
No. 22½ Garvin Monitor.
No. 3 Kempsmith.
14"x 6' Warner & Swasey.
16"x6' Johnson, back grd.
No. 3 Bardons & Oliver back grd.
14½"x5' 3" Pratt & Whitney, (2).
No. 3 Foster Kimball.

DRILL PRESSES.

42" Gang radial, s. p. speed box.
40" Barnes horizontal radials, (2).
36" Bickford radial, circular base, motor driven.
26" Rockford, tapping attachment.
29" Rockford, q. c. g. feed, (2).
34" Barnes, s. h., geared face, comp. table.
24" Sibley & Ware, sliding head.
Drill presses, assorted sizes.

MILLING MACHINES.

No. 5 Cincinnati, table 9½x50½".
No. 15 Garvin, table 12x42".
No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.
No. 3 Hendey-Norton, q. c. g.
No. 5-C Becker vert., rotary table.
No. 1 Milwaukee plain.

PLANERS AND SHAPERS.

12'x10'x25' Sellers planer, 4 heads.
48"x37"x9' Sellers, 2 heads.
48" Morton draw-cut shaper.
16" Potter & Johnston crank shaper.
18" Lodge & Davis shaper.
15" Potter & Johnston shaper.
14" Warren shaper.

MISCELLANEOUS.

Boring mill, car wheel, 60" Newton.
Boring, drilling and milling machine, 17½' Bement Niles horizontal.
Boring mill, No. 1 Sellers, horizontal, 2½" bar.
Boring mill, No. 3 Binsse, horizontal, 2½" bar.
Centering mche., 5" Whiton, dbl. sp.
Centering mche., 4" Whiton, dbl. sp.
Grinder, 13½"x5' Landis universal.
Grinder, disc, No. 17 Besly.
Hammer, 15 lb. Bradley helve.
Hammer, 40 lb. Bradley, helve.
Hammer, 60 lb. Hotchkiss.
Hammers, 60 lb. Bellefonte upright, 2
Keyseater, 18" stroke Morton.
Pipe machine, 4" Cox.
Molding machine, 24" Taber, with roll over.
Punch presses, all sizes, (55).
Punch, multiple, No. 5 H. & J., gate pat., 86".
Punch & shear, No. 2 H. & J., dbl. end, 20" th. cap., 1½" in 1".
Punch, No. 2 H. & J., 15" th., arch. jaw, 1½" in 1".
Punch, horiz., L. V., grd., cap. 1".
Punch & shear, Industrial Wks, d. e., capacity ⅝" in ⅝"; shearing ⅝"x6".
Riveter, air, 6' gap Allen, cap. 1½".
Slotter, 14" Niles.
Tooth rounding mche., Schuchardt & Schutte.

Large assortment of General Machinery. Send for complete Price List.

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FOR SALE BY

D. E. Rowlingson, - - - Box 265, Utica, N. Y.

Drill presses, 10" to 20" bench and floor.
Engine lathes, Hendey, Smith, Flather, Seneca Falls 12" to 18".
Radial drill, Bickford, Cincinnati, Ohio, q. c. gears, angle and chuck.
Shaper, American, 15" vise, almost new, bargain.
Many other tools not listed, also hangers, belting, motors, pulleys.

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

Bolt cutter, Acme 1½", double spdl.
Bolt cutter, Webster & Perks 4-sp.
Boring mill, Rockford, horizontal.
Drills, Avey 2 & 3 spdl. high speed, heavy duty, with power feeds.
Drill, Henry & W. high spd. radial.
Grinder, Oesterlein No. 3 cutter & tool, with all attachments.
Grinder, Wilmarth & M. surface with auto. feed and magnetic chuck.

Machine tools for every purpose. Send us your inquiries.

FOR SALE BY

Brownell Machinery Co., - 150 Pine St., Providence, R. I.

BORING MILLS.

24" Bullard rapid production vertical.
No. 1½ Beaman & Smith horiz. drilling, tapping, boring and milling mche., 3½".

GEAR CUTTERS

No 3 Brown & Sharpe, spur, 28x8.
No. 4 Brown & Sharpe spur, 36x9, flywheel on cutter arbor.
No. 3-H Brown & Sharpe, 24"x8.
No. 13 Brown & Sharpe spur and bevel, 18x4.

GRINDERS.

10x96 Norton plain.
No. 11 B. & S. plain, 4x30.
No. 1 Norton tool & cutter.
No. 2 Norton tool & cutter.
No. 2 B. & S. cutter & reamer.
No. 1 B. & S. automatic surface.
Garvin hand feed surface.
Grand Rapids twist drill ½ to 2½.

HACK SAWS.

No. 7-K Atkins 8x8.
13"x16" Peerless high speed.
12" H. & R. metal band saw.

LATHES.

30"x20' Fitchburg.
20"x12' Reed.
20"x16' Beaman & Smith.
16"x10' Filsmith, with gap.
14"—19"x12' Carroll, q. c. g.
12"x6' Reed.

MILLING MACHINES.

No. 2 heavy B. & S. plain.
No. 3 B. & S. plain.
No. 2 B. & S. plain.
No. 1½ Brown & Sharpe universal.
No. 2 Brown & Sharpe vertical.
No. 2-A Becker vertical.
Model "C" Becker vertical, power, rotary table.

PLANERS.

48"x72"x20' Gray, 4 heads.
30"x30"x6' Detrick & Harvey open side.
24"x24"x6' Powell.
17"x20"x4' Whitcomb-Blaisdell.

SCREW MACHINES.

No. 6 B. & S. geared friction head.
No. 4 B. & S. plain head, wire feed.
No. 2-F B. & S. hand, constant spd.
No. 0 B. & S. wire feed, hand (7).
3x36 J. & L. turret.
No. 2 P. & J. piston & piston ring.

MISCELLANEOUS.

Adjustable hand reamers, new Taft-Peirce, at 40/50% discount.
Broaching mche., No. 2 Lapointe.
Drill, upright, 25" Weigel slid. hd.
Radial drill, 5' Prentice Bros., s. p. d.
Radial drill, 4' Prentice Bros., s. p. d.
Shaper, 15" Potter & Johnston.
Slotter, 12" Bement Miles.
Swaging mche., No. 2 Langelier.
Swaging mche., No. 2 Standard.
Tapper, No. 2 Garvin vertical.

MAGNETIC CHUCKS

50—Brand new Taft-Peirce Simmons Rectangular Magnetic Chucks 8x10, for 110 v., d. c., suitable for No. 2 surface grinders.

FOR SALE BY

J. P. Rentschler & Co., - 6722 N. Maplewood Ave., Chicago

PRESSES.

No. 87 Bliss, foot-lever.
No. 0 Wm. Freck, open back.
Nos. 18 & 18-C Bliss, o. b. i.
Nos. 2 & 3 Consolidated, o. b. i.
No. 3 American Can, 4" stroke.
No. 3 Walsh, o. b. i., 2" stroke.
No. 16 Bliss horn press.
No. 68-N Bliss, cam crawing.
No. 3 Bliss, double crank, 3" stroke.
No. 1½ Bliss, toggle drawing.
No. 2½-C Bliss, toggle drawing.
No. 16½ Toledo, toggle drawing.

MISCELLANEOUS.

Can machinery, new and used, large assortment.
Grinder, 12"x36" No. 2 Cincinnati, cylindrical, universal.
Power square shear, No. 30 Niagara, capacity 20 ga., length 30".

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, - - N. S., Pittsburgh, Pa.

Arbor press, No. 24 Atlas
Blower, No. 5 Champion, 6¾" outlet.
Blower, Amer. pressure, 461 cu. ft
Boring mill, No. 44 D. & H., floor type, 3½" bar.
Boring mill, Niles horiz., 4½" bar.
Boring mill, 34" Colburn, 1 head.
Brake, 60" D. & K., 14 gauge m. d.
Buffer, 2 h.p. U. S. Elec., 220-3-60
Centering mch., 4" Whiton, s. h. 2-sp.
Drill, 13" Fosdick 6-spdl. m. d.
Drill, 16" Fosdick, 6-spdl., m. d.
Drill, Baush 8-spindle, No. 3 taper.
Drill, No. 13 Natco, 16-sp., No. 1 tap'r.
Drill, 21" Cincinnati, sliding head.
Drill, 24" Hoefer, sliding head.
Drill, 36" Snyder, sliding head.
Drill, No. 316 Baker heavy duty.
Drill, Model "F" Turner auto. tur.
Gear cutter, 36"x10" G. & E., s. p. d.
Generator set, 250 k. w. G. E., 230 v., d. c. connected 400 h. p. Erie-Ball.
Generator set, 50 k. w., 230 v., d. c. generator, connected 90 h. p. Bruce-MacBeth gas engine.
Grinder, No. 70 Heald internal.
Grinder, No. 3 Brown & S univ.
Grinder, 12"x30" Modern plain.
Grinder, Besly No. 8-20-L, dbl. disc.
Grinder, W P L New Yankee cap. 2½".
Hammer, 80 lb. Bradley cush. helve.
Lathe, 12"x 6' Seneca Falls.
Lathe, 12"x10' Davis tool r'm, q.c.g.
Lathe, 14"x 6' Hendey, g. h., m. d.
Lathe, 14"x 6' Seneca Falls, q. c. g.
Lathe, 14"x 8' Whitcomb-Blaisdell.
Lathe, 16"x 8' Bradford, q c. g.
Lathe, 17"x8' Sidney, hvy. duty, q.c.g.
Lathe, 18"x8' L. & S., q. c. g., m. d.
Lathe, 18x10 Whitcomb-B., g.h., s.p.d.
Lathe, 24"x10' Boye & E., g. h., m.d.
Lathe, 24x10 Whitcomb-B., g.h., m.d.
Lathe, 24"x22' American, g. h., m. d.
Lathe, 26"x12' Bridgeford hvy. duty.
Lathe, 27"x36' Schumacher-B., q.c.g.
Lathe, 30"x12' Johnson, triple grd.
Lathe, 34"x12' Le Blond, triple grd.
Lathe, 42"x31' Pond, triple geared.
Miller, No. 1 Knight drill.
Miller, No. 1½ American plain.
Miller, No. 2 Cincinnati, plain, v. a.
Miller, model "C" Becker, vert.
Millers, Sellers, Lincoln type, (2).
Miller, model "H" Becker, mfg. type.
Union rougher, 36-BM Gould & E.
Pipe machine, B. & K., ½" to 2" m. d.
Pipe machine, 8" Cox, cap 2½" to 8".
Pipe machine, Merrill, 2½" to 12".
Planer, 60"x60"x16' Betts, 3 heads.
Planer 38"x36"x8' Cincinnati, 1 hd.
Press, Lucas 15-ton forcing.
Press, No. 19 Bliss, o. b. i., 2" str.
Press, No. 5-A Willard, o. b. i., 2" str.
Press, No. 87 Niagara, screw.
Presses, Nos. 61 & 62 Bliss, o.b., f.w.
Press, Ferracute DD2, o. b. i., cam.
Press, No. 10 Bliss, reducing, 4" str.
Press, No. 78½ Bliss straight sided.
Press, No. 305 Bliss geared, 8" str.
Press, No. 1½ Bliss toggle drawing.
Presses, Nos. 54 and 55 Toledo trimming.
Punch, Royersford d. e., cap. 1"x¾", arch. jaw, 18" throat.
Punch, F.F Cleveland, 48" thrt., m.d.
Punch, Wickes, 48" thrt, cap. 1½"x1".
Radial drills, 4' & 5' Prentice plain.
Radial drill, 5' American plain, t. a., motor drive.
Radial drill, 6' American pl., belt dr.
Reduction gear, Foote, 50 to 1.
Saw, Williamson metal band.
Saw, American metal swing, m. d.
Shaper, 16" Hollingworth b. g. cr.
Shaper, 20" Steptoe b. g. crank.
Shaper, 24" Cincinnati b. g. crank.

Our warehouse is full of bargains. What have you for sale?

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The Stearns-Roger Manufacturing Co., - Denver, Colorado

HORIZONTAL BORING MACHINE

We are in the market for a second-hand No. 31 or No. 32 Lucas horizontal boring machine. Give full particulars in first letter.

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Standard Equipment Company, - Cedar Rapids, Iowa.

MACHINE TOOLS

Lathe, 24"x26' Mueller.
Planer, 42"x42"x8'.
Radial drill, 36" Universal.

FOUNDRY EQUIPMENT

Blower, No. 7 Sturtevant.
Burner, Hauk, with 29' air hose on carriage, 10 gal.
Molding machines, No. 2 Modern Arcade, 40" table, 10½" draw, (3).
Knee vibrator, electric.
Molding machine, roll-over, 28"x25", made by International Molding Machine Co., Chicago.

FOR SALE BY

Kemp Machinery Co., 215 N. Calvert St., Baltimore, Md.

Air compressor, National, 3-cylinder vertical, 100 cu. ft.
Broaching machines, two No. 1 and one No. 0 Lapointe.
Grinder, edge or guide bar, 60" Springfield, practically new.
Grinder, Blanchard No. 16, floor, motor drive type.
Miller, plain, No. 5 Brown & Sharpe, cone type.
Millers, 12" Cincinnati plain manufacturing, (2).
Wood cut-off machine, Greenlee, power feed, heavy.

Also 200 other Machine Tools of various types.

Send us your inquiries.

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

Clock, electric time system.
Demagnetizer, Walker.
Drills, Leland-Giff'd 2-3 sp., h.s.,b.b.
Drill, Detroit 5-spindle horizontal.
Drill, Gardam 12-spdl. adjustable.
Drills, Demco, H. & W., Kokomo 1-spdl., Sipp 2 spdl., h. s., b. b.
Drills, 20", 24", 34" b. g., & tapping.
Furnace, Holcroft 92 k.w. annealing.
Gear hobbers, Schuchardt & S. 24".
Gear shaper, Fellows 36".
Grinders, P. & W. 14" vertical surface; 4 Ott 5"x18"; Landis 12"x48".
Hack saws, 4x4, 6x6 & 6 Racine Jrs.
Lathes, Davis 22"x10'; Bridgeford 27x8, Star 12x5, mtr.; L. & S. 16"x6'.
Milling machines, Kempsmith No. 2; Ohio No. 2 plain; Becker No. 6 vertical; Becker "SD" vertical, rotary table, 17200 lbs.; Cin'ti No. 3 pl.; Amer. No 1½ univ.; Rockford 1½ universal; B. & S. 1½; Ohio 34.
Pipe mche., Jarecki 6", dies & cut-off.
Punches, Felber 1" in 1", and slitt. shear; Scully, 20" throat, 1" in 1"; Long & Allstatter No 6.
Punch presses, Bliss Nos. 18 & 20; Niagara No. 3; Toledo No. 1; Niagara No. 6, o. b. i.
Rivet spinners, Grant 3/16"x¾".
Screw machine, Gridley 1-spdl. 2½" auto.; Cleveland 1½" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret head; Bardons & Oliver No. 7; 2 Milholland, plain and back geared.
Shapers, 26" open side planing; 15" Kelly; 16" Milwaukee; 24" Walcott; 16" Steptoe; 24" Barker; 16" Rockford
Shears, 60" thrt. rotary slitting, (2).
Tapping mche., Garvin No. 2 auto.
Welders, 20 k. w. spot, Winfield.
Welders, butt, Federal, ½" rds.
Wire straighteners and cutting-off machines, Adt, (2).

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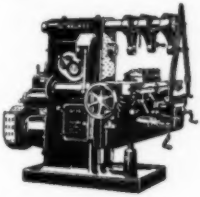

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Every machine has been completely disassembled, re-scraped, and new parts put in wherever necessary. A K & T rebuilt is thoroughly tested and carries the same accuracy guarantee as a new machine.

1½A Mfg.	**Single Overarm**
2BS Plain	**Double Overarm**
2A Mfg.	**Double Overarm**
2B Plain	**Double Overarm**
2B Plain	**Single Overarm**
3B Plain	**Single Overarm**
3B Plain	**Double Overarm**
3B Universal	**Double Overarm**
4B Plain	**Double Overarm**

3B Vertical
4B Vertical

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Largest stock of high grade machine tools in America. All principal makes and models. Every one guaranteed. Save 25 to 60 per cent on prices.

This is only a partial list. Write for price on any tool you need, whether listed below or not.

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1—56"-64"x18' Johnston.
1—51"x20' LeBlond.
3—36"x37' Niles Bement Pond.
4—36"x30' Pittsburgh Geared Hd.
1—32"x12' Pittsburgh.
2—30"-34"x12' L. & S. Sel. Hd.
21—26"x10' Canada.
15—25"x12' LeBlond.
8—25"x10' LeBlond.
1—24"x15' Chard.
1—24"x12' Reed Prentice Grd. Hd.
9—24"x11' Cisco.
1—24"x10' American.
10—21"x10' LeBlond.
5—20"x16' American.
5—20"x12' American.
5—20"x 8' LeBlond.
3—20"x14' American G. H.

MILLERS

3—No. 5-C Becker Vertical.
6—No. 3 Brown & Sharpe Vert.
3—No. 3 Cincinnati Vertical.
1—No. 2B Milwaukee Vertical.
2—No. 4-B Becker Vertical.
3—No. 4 LeBlond Plain.
4—No. 4 Cincinnati Plain.
7—No. 3-B Hvy. Brown & Sharpe.
9—No. 3 Kempsmith Plain.
4—No. 2-B Hvy. Brown & Sharpe.
1—No. 2 Rockford Plain.
1—No. 2 Kempsmith Plain.

PLANERS

1—72"x56"x36' Cincinnati.
2—42"x42"x16' Rockford.
3—36"x36"x18' Cincinnati.
1—36"x36"x12' Woodward & P.
2—36"x36"x10' Bickett.
1—24"x24"x 6 American.

PRESSES

1—96-G Toledo Double Crank.
1—No. 69 Stoll Geared.
2—No. 56 Ferracute.
1—No. 163½ Toledo Toggle.

BORING MILLS—Vertical

5—72" Gisholt.
1—72" Cincinnati.
1—62" King.
1—60" Pittsburgh.
1—53" Niles-Bement-Pond.
1—52" Gisholt.
1—42" Gisholt.
1—30" Bullard.
1—24" Bullard Rapid Production.

BORING MILLS—Horizontal

1—No. 1½ Bar Beaman & Smith.
1—No. 350 Giddings & Lewis.
7—Rockford.
1—3" Foote-Burt.

DRILL PRESSES

1—No. 513 Baker.
1—No. 310 Baker.
1—No. 24 Foote-Burt.
2—No. D-2 Colburn.
2—22" Barnes all geared.
19—No. 1-K 8" Henry & Wright.

RADIAL DRILLS

1—7' Western.
1—5' Niles-Bement-Pond.

GRINDERS

1—20"x98" Landis.
1—18"-30"x96" Norton Gap.
3—14"x50" Norton.
4—12"x36" Modern.
3—10"x72" Norton.
2—10"x36" Norton, M. D.
2—6"x18" Landis.

Our Guarantee: Your money back if you return a machine within thirty days, freight prepaid.

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PARTIAL LIST

3½' American Radial, S. P. D.
5' Niles Radial, Universal, cone driven.
No. 3 Hendey Universal Miller, late type, full equip.
Binsse Horizontal Mill, 3" bar.
36"x36"x10' American Planer, 2 hds., fine shape, $900.
24" Rockford S. H. Drill Press.
28"x48"x14' Harrington Gap Lathe.
24"x12' Prentice Geared Head Lathe.
42" Bullard Mill, D. C. Motor Drive.
3' Bickford Radial, S. P. D.
6' Cincinnati Bickford, S. P. D.
No. 2 Brown & Sharpe Miller, S. P. D.
No. 3 Brown & Sharpe Miller, S. P. D.
20" Cincinnati Shaper, A1, $525.
30"x30"x8' Pond Planer.
18"x8' Springfield Lathe, $185.
14"x10' Lodge & Shipley Lathe.
10" Cox Pipe Machine, $975.
72" Niles Boring Mill, 2 heads.
No. 310 Baker Drill, A-1 condition, $485.
60" Baush Mill, excellent, $1900.

No. 60 Quickwork Rotary Shear, 1' capacity, Arranged Motor Drive, Like New, $3750.

10"x72" Norton Plain Grinder, $925.
36"x16' Niles-Bement-Pond NEW LATHE, half price.
24" Potter & Johnston Shaper, $800.
12"x60" Landis Universal Grinder, $600.
80"x80"x14' Pond Planer, 2 heads.
8" Q. & C. Cold Saw, nice shape, $285.
No. 4 Brown & Sharpe Gear Cutters.
50"x36"x22' N. B. P. Planer, rev. motor drive.
Allen Riveter, 14"x32", cap. 1", $325.
Garvin Monitor Lathe, 18" swing, $175.
72"x72"x30' Sellers Planer, 4 heads.
4", 5" and 6" Centrifugal Pumps, A-1.

And many other Good Used Tools & Equipment at Fair Prices

Write and tell us what you need or have for sale

For Good Rebuilt

SHAPERS AND PLANERS

24" Smith & Mills Back Geared Crank Shaper.
20" Cincinnati Back Geared Crank Shaper.
20" Queen City Back Geared Crank Shaper.
20" Rockford Back Geared Crank Shaper, gear box drive.
16" Steptoe Back Geared Crank Shaper.
15" American Tool Works Plain Crank Shaper.
15" Hendey Friction Shaper.
26"x26"x 8' American Planer, one head.
36"x36"x14' American Planer, two heads.
38"x38"x18' Niles Tool Works Planer, two heads.

GRINDERS AND GEAR MACHINERY

No. 60 Heald Cylinder Grinder, late type.
No. 70 Heald Internal Grinder.
No. 6 Rivett Internal Grinder.
No. 1 Gardner Ball Bearing Disc Grinder.
10"x50" Norton Plain Crinder.
6"x32" Norton Plain Grinder.
No. 1 Brown & Sharpe Universal Cylindrical Grinder.
No. 1 R. K. LeBlond Universal Tool and Cutter Grinder.
18"x12" Gould & Eberhardt Gear Hobber.
No. 12 Barber-Colman Gear Hobber.
18" Schuchardt & Schutte Gear Hobber.
No. 4—36" Brown & Sharpe Auto. Spur Gear Cutter.
No. 3—26" Cincinnati Auto. Spur Gear Cutter.
24" Gould & Eberhardt Auto. Spur Gear Cutter.
No. 12 Brown & Sharpe Auto. Spur and Bevel Gear Cutter.

ENGINE LATHES

30"x14' Fifield.
30"x12' LeBlond, q. c., hvy. duty.
24"x12' LeBlond, q. c., hvy. duty.
24"x10' Boye & Emmes, q. c.
21"x10' LeBlond, q. c., hvy. duty.
21"x 8' LeBlond, q. c., hvy. duty.
20"x10' American Tool Wks., q.c.
18"x11' Chard, q. c., heavy duty.
18"x 8' Lodge & Shipley, q. c.
16"x 8' Lodge & Shipley, q. c.
16"x 6' R. K. LeBlond, q. c.
14"x 6' Lodge & Shipley Tool Room, quick change, with taper and collets.
14"x 6' Hendey, yoke head, qk. change, with taper.

RADIAL AND UPRIGHT DRILLS

3¼' American Tool Works Triple Geared Radial, speed box drive.
3' Prentice Bros. Radial, speed box drive.
Nos. 1 & 3 W. F. & John Barnes Horizontal Radials.
28" Aurora Drill, tapping attachment.
26" Cincinnati-Bickford Drill, tapping attachment.
26" W. F. & John Barnes Drill.
24" Cincinnati-Bickford Drill, speed box drive.
24" Aurora Drill.
22" W. F. & John Barnes Drill.
20" W. F. & John Barnes Drill.
6-spindle Henry & Wright High Speed Ball Bearing Drill.
Henry & Wright High Speed Ball Bearing Drill, with power feed.

EASTERN MACHINERY CO.,

ALL MACHINES CARRIED IN

ilt Machinery, See Eastern

MILLING MACHINES

No. 1-B R. K. LeBlond Universal, complete.
No. 1½ Rockford Universal, complete.
No. 3 R. K. LeBlond Universal, complete.
No. 3-B Heavy Brown & Sharpe Plain.
No. 3 Cincinnati Plain.
No. 4 Cincinnati Plain, 4-step cone drive.
No. 2½ R. K. LeBlond Plain.
No. 2 Cincinnati Plain.
No. 2 Brown & Sharpe Plain.
No. 1½ Valley City Plain.
No. 0 Cincinnati Plain.
No. 5 Becker Vertical.
No. 7 Becker, Lincoln Type.
Hendey, Lincoln Type.

TURRET LATHES AND SCREW MACHINES

24" Gisholt Turret, late type, 6¼" hole.
3"x36" Jones & Lamson Flat Turret.
2½x26" Pratt & Whitney Flat Turret.
No. 4 Bardons & Oliver Turret.
2" Pratt & Whitney Hexagon Turret.
No. 4 Universal Warner & Swasey Turret.
No. 2 Warner & Swasey Plain Head Turret.
No. 3 Foster Turret.
No. 4 Brown & Sharpe Wire Feed Screw Machine.
No. 1 and No. 2 S. P. Garvin Screw Machines, New.

MISCELLANEOUS

Air Compressor, 16"x14" Chicago Pneumatic, class N. S. B., belt drive.
Arbor Press and Broaching 15-ton Hercules.
Bolt threader, 1½" Acme double spindle, belt drive.
Boring Mill, 34" Colburn vertical, turret head.
Boring Mill, 2½" bar Morris Horizontal, motor drive, a. c. motor.
Broaching Machine, No. 3-B J. N. LaPointe, late type, friction pulleys.
Hack Saw, 7x7" Atkins Kwik-Kut, power.
Hack Saw, 6"x6" Racine high speed.
Hammer, 200 lb. Bliss, board drop.
Hammer, 600 lb. Chambersburg single leg, steam.
Keyseater, No. 00 Baker Bros., ¾" capacity.
Keyseater, No. 2 Davis, ⅝" capacity.
Press, power, No. 2 Toledo, o. b. i.
Press, power, No. 2 Michigan, o. b. i.
Press, power, No. 8 Chas. Lefler, o. b. i.
Press, power, No. 5 Michigan, geared, o. b. i.
Riveting Hammer, No. 4-A High Speed.
Shear, power, 42" No. 242 Niagara.
Shear, power, 48" Queen City.
Shear, power, 10' Niagara, capacity 10 gauge and lighter.
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4' Mueller Radial, single pulley drive.
3½' Cincinnati Bickford, single pulley drive.
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No. 3 Cincinnati Universal Miller, dividing heads.
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24"x12' American, q. c. g.
24"x 8' LeBlond, q. c. g.
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48"x48"x 8' Sellers 1-head.
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20" Smith & Mills.
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18" Thrt. Cleveland ½" cap. arch. jaws.

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TOLEDO No. 55½ Straight Side Trimming Press.
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1—20" Bement Slotter.
1—15" Newton Slotter.
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1—34" Bertram (Niles) turret.
1—36" Vertical turret and side.
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1—54" Colburn, two heads.
1—60" Cincinnati, two swivel hds.
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1—84" Pond special X heavy, two swivel heads, gear feeds.
1—84" Niles-Bement-Pond, 2 heads, gear box, motor drive.

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1—60"x60"x24' D. & H. Open-side.
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1—36"x36"x20' Woodward-Powell, like new, reversing motor drive.
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1—24"x24"x12' American, 2 heads.
6—24"x24"x6', 8' and 10' Whitcomb Second Belt Drive Planers.

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3—24" Gisholt, big bore.
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6—3x36 Jones & Lamson flat.
1—3x36 Hartness, double spindle.
6—18" Libby rapid production.
2—2½"x10" Millholland.
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7/16"x2½" P. & W. turret.
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4—0 B. & S. Automatics.
1—0 B. & S. Cut-off.
1—1⅛"x7" New Britain.

Miscellaneous

60" Doelcam Rotary Sand Blast.
XB—2 Ingersoll-Rand Compressor
2-B Gorton Cut-off Machine.
40-A Thompson Butt Welder.
Rennerfelt Electric Furnaces.
LaPointe Broaching Machines.
9" Bignall Keeler Pipe.
Rockford Balancing and Drilling.
Hilles-Jones Guillotine Shear.
5x5 Carlin Alligator Shear.
No. 0 Eastman Photostat.
10,000 lb. Steam Forging Hammer.
40 lb. Bradley Helve.
1000 lb. McDougal Porter single leg forging.
4—Nutter Barnes Cut-off Saws.
4" Oster Pipe Machine.

Simmons Machine Tool Corp.

NEW YORK	ALBANY	BUFFALO
149 Broadway	1212 Troy Road	88 Exchange St.

GOOD USED TOOLS

DRILLS

24" Baker Heavy Duty.
2' American Radial, swing tbl.
6' Gang Radial.
No. 61 B Harrington 24 spdls.
2 Spindle Cincinnati B. B.
2 Spindle Avey B. B. Bench.

LATHES

17x 8 Sidney, q. c. g.
18x 8 Greaves & Klusman, q.c.g.
18x 8 Hamilton, q. c. g.
18x12 Hamilton, q. c. g.
25x14 LeBlond, q. c. g.
30x14 LeBlond, q. c. g.
32x14 Wickes, q. c. g.

BORING MACHINES

Universal 2½" bar.
Lucas 3" bar.
Rockford No. 2.

BROACHING MACHINES

No. 1 J. N. La Pointe.
No. 3 American.

MILLERS

No. 34 Ohio plain.
No. 3 Kempsmith plain.
No. 2 Cincinnati vertical.
No. 3 Cincinnati vertical.
Model C Becker vertical.
Model AB Becker vertical.

Stocker-Rumely-Wachs Co.
117 N. Jefferson St., Chicago, Ill.

Machinery Bargains

42"x42"x16' Cleveland Open Side Planer, 3 heads, arranged motor drive ..... $4250.

Brown & Sharpe No. 3 Vertical Milling Machine ..... $1600.

Brown & Sharpe No. 13-B Production Miller ..... $1300.

NEW LeBlond No. 4 Pl. Miller $1500.

H. A. Smith Machinery Co.
Syracuse, New York

Opportunity Knocks Again For the Conservative Buyer

Real Values in Machine Tools—

Planers

72"x54"x24' Pond, 4 heads.
72"x72"x18' Betts, 4 heads.
36"x36"x24' Pond, 4 heads.
36"x36"x12' Woodward & P., 3 hds.
36"x36"x 8' Dietrick & H., openside.
26"x26"x 8' Pease.

Boring Mills

96" Niles, 2 heads.
2—54" Bullard Maxi.
2—42" King.
2—Blomquist & E., horiz., 3¼" bars.

Hammers

5000 lb. Chambersburg.
4000 lb. Chambersburg.
4000 lb. Massillon.
3500 lb. Massillon.
2500 lb. Massillon.
2—800 lb. Waterbury Farrell board.
2—600 lb. Waterbury.

Grinders

10x50 Norton plain.
8x36 Fitchburg.
16x48 Landis crankshaft.
No. 2 Brown & Sharpe universal.
No. 2 Taft Pierce universal.
Heim's Centerless, motor drive.
No. 4 Detroit Centerless, motor drive.
10x30 Webster & Perks universal.

Screw Machines

3¼" Gridley.
1¼" Gridley.
No. 55 National Acme.
No. 53 National Acme.
No. 52 National Acme.
No. 00 Brown & Sharpe.
No. 0 Brown & Sharpe.
2" Cleveland Model B, New.
2" Cleveland Model B.
3¾" Cleveland Model A.
2¼" Cleveland Model A.
No. 20, ⅝"—⅞" Cleveland Model B.
No. 6 Warner & Swasey.
No. 6 Foster.
24" Gisholt, complete equipment.
18" Gisholt, complete equipment.

Lathes

48"x21' Pond, triple grd., motor drive.
44"x45' Putnam, triple grd., motor dr.
40"x14' Alliance Geared Head.
32"x12' No. 3 Pittsb'gh, q.c., h.d., c.dr.
30"x16' Reed, cone drive.
30"x28' Pond, triple grd., motor drive.
24"x16' Whitcomb-Blaisdell, cone dr.
20"x14' Reed, plain change, cone dr.
21"x10' Boye & E., qk. ch., cone dr.
20"x10' Hendey Yoke Head.
14"x 6' Hendey, t. a., qk. ch. collets.
14"x 6' Hendey, t. a., draw-in attachment, reliev. attachment.

Drills

6' Niles Radial.
5' Bickford, t. a., motor drive.
36" Aurora, g. f.
4-spindle Leland-Gifford, ball bearing.
3-spindle Leland-Gifford, ball bearing.
12-spindle Baush Drill.
6-spindle Foote-Burt No. 5 Taper.
No. 2 Colburn, h. p., (New).
No. 25 Foote-Burt.
No. 4 Mueller Radial, s. p.

Milling Machines

No. 4 LeBlond plain.
No. 3 Brown & Sharpe plain.
No. 2 Brown & Sharpe plain.
Gooley & Edlund slab.
12" Cincinnati mfg. type.
84 Pratt & Whitney Thread Miller.
No. 3 U. S. Hand Millers.
No. 2—13B Brown & S., plain.
2 No. 2 Garvin Duplex.
2M—Potter & Johnston.
2A—Milwaukee, s. p. drive, plain.

Miscellaneous

50-ton 60' Span Alliance Crane.
4½" Acme Bolt Cutter.
Hendey Centering.
36" Fellow's Gear Shaper.
18" Gleason Bevel Gear Generator.
4-Spindle Moline No. 1 Hole Hog.
60" Gould & Eberhardt Gear Cutter.
30" Schuchardt & S. Gear Hobber.
3" National Bolt Cutter.
No. 20 Bliss Punch Press.

The EMPIRE MACHINERY EXCHANGE CO., Inc.

***Offices and Warehouses:* 2261 E. 14th St., Cleveland, Ohio**

SPECIALS

Brown & Sharpe Millers—No. 3 Vertical; No. 3 Universal, with vertical attachment; Nos. 2-B and 3-B Plain, single pulley drive.
Model AB Becker Vertical, $375.
Cincinnati Planers, 1—33"x33"x10'; 1—24"x24"x8'.
Gray Planers; 1—30"x30"x16'; 1—24"x24"x6'.
Cisco Lathes; 2—16"x8', q. c.; one 1—16"x6', q. c.
Mueller Lathes—18"x8 and 18"x6', q. c.
New Britain Automatic, 6 spindle, 1½"x7".
Detrick & Harvey Open Side Planers, 1—24"x24"x6'; 1—48"x16'.
24"x14' Schumacher & Boye Q. C. Lathes.
24"x12' Lodge & Shipley Q. C. Lathe, patent c. s.
2—20½"x16' Bridgeford Lathes, with taper.
26"x8' Pittsburgh Lathe, q. c., taper, 3 step, d. b. g.
Norton Cylinder Grinder, 18"x96", $1000.
48"x28' Niles Triple Geared Lathe, $1550.
46"x18' New Haven Triple Geared Lathe, raised to 62", $1300.
6' Niles Universal Radial, with motor, $1050.
42" Bullard Boring Mill, 2 heads, $1450.
Style A Long & A. Punch and Shear, 2½"x1", with arch. jaw, $750.
Shapers—24" Gould & Eberhardt; 16" Steptoe; 15" Kelly.
Lucas Forcing Press, 80-ton cap.
Morse Grinder, 6"x30".
Bliss Presses, Nos. 18 and 20.
No. 5 Toledo Inc. Press, $425.

More than 300 other Machines in Stock. Low Prices.

Norton-Broadway Machinery Co., Cincinnati, Ohio

Some things you don't always find:—

Generator, (brand new), 10 k. w., 50 c., 125 v., 80 amp., d. c. Westinghouse Turbine, with auto. governor.
Tumbling Barrels, 27"x36" Foundry, gd. type.
Motor, 10 h. p. Westinghouse, 220 v., 3 ph., 60 cycle, with compensator.
Gasoline Engine, 2 h.p. model, d.c., New Way air cooled.
Cutting-off Machine, 4" Hurlbut-Rogers.
Slotter, Geared, 26" Niles.
Chuck, Magnetic, 16" D. & W. Rotary, 230 volts.
Milling Attachment, No 5-H Cincinnati vertical.
Milling Attachment, No. 2 Farwell.
Pipe Bender, ½" to 3" cap. Riverside, hand.

THE E. L. ESSLEY · MACHINERY · Co

551 W. Washington Blvd., Chicago. 78-80 W. Water St., Milwaukee

NEW 3 PHASE MOTORS CHEAP. 3 H. P. $57.50; 5 H. P. $67.50

LATHES

12"x 5' Cleveland, geared head.
14"x 6' Carroll-Jamieson, new, q. c.
14"x 6' Hamilton, grd. hd., motor dr.
14"x 6' Monarch, quick change.
14"x 6' Rockford, q. c., t. a., plain.
14"x 6' Sebastian, c. r., h. d., mtr. dr.
14"x 8' Sidney, double back geared.
14"x 6' Hamilton, style B.
16"x 8' Sidney, double back geared.
18"x10' American, quick change.
20"x10' Hamilton, rapid production.
22"x10' Greaves & Klusman.
24"x24' Prentice, with raising block.
27"x 8' Bridgeford, heavy duty.
8x60" & 3½x60" Fitchburg, Lo-Swing.

TURRET LATHES and SCREW MACHINES

No. 4 Defiance, 1½" capacity.
No 4 Woods Tilted Turret.
1½" Milholland.
2x24 and 3x36 J. & L.
No. 1 Foster, 15/16" capacity, (2).
Warner & Swasey No. 2.
Warner & Swasey No. 4.
Nos. 52 & 56 National Acme auto.

SHAPERS

14" Niles, traveling head.
14" Steptoe, crank.
16" American tool room.
16" O. & S., back geared, new, low price.
16" American back geared crank.
16" Cincinnati b. g., motor drive.
16" Barker back geared crank.
24" O. & S. back geared crank.
24" Gould & Eberhardt b. g. crank.

PRESSES

Nos. 3-A & 5-A Willard inclinable.
Nos. 5 and 6 Toledo inclinable.
Nos. 1½, 2, 2½ & 4 Robinson, new.
Emco, bench, for radio parts.
No. 35 Niagara straight side.
Perkins, dbl. housing, wt. 4,000 lbs.

DRILLS and RADIALS

3' W. E. Gang plain.
No. 1 Baush multiple.
4' Plain Universal Radial Drill Co.
Electric Drills, Black & Decker.
No. 4 Duntley electric.
22", 24", 28", 28" and 32", sliding hd.
6' Ceiling Drill.
4-spindle Reed sensitive.
44" Stover.

MILLING MACHINES

No. 1 Kempsmith universal, new.
No. 3 Kempsmith univ. and plain.
No. 3 Kempsmith plain, new.
No. 3 Cincinnati universal.
No. 3½ Fox.
No. 25 Becker plain, power feed.
No. 2 H Brown & Sharpe plain.
Oesterlein 24x7½x18 plain.
Briggs "A" high duty, 24x8" table.
No 7 Becker, Lincoln type.

GRINDERS

Nos. 1 & 78 W. & M. surface.
No. 2 W. & P. 10"x30" universal.
6"x15" Fitchburg plain.
12"x36" Cincinnati universal.
16"x42" Landis universal.
36" and 66" Yates plate.
No. 70 Heald internal.
No. 60 Heald cylinder.
Schmitt cylinder grinder.
No. 3 Ohio universal, tool and cut.
No. 4 Gardner 20" double disc.
No. 10 Besly 18" double disc.
No. 20 Bryant, chucking.
Capital internal, new, 2"x2" cap.

MISCELLANEOUS

Band saw, Clark, compound.
Band saws, Napier 4"x4", 10"x10".
Bending rolls, 7' for 3" plate.
Boring mill, Colburn No. 3, tur. hd.
Boring mill, 50" car wheel.
Brake, 10', 18-gauge metal.
Broaching mchs., 1 and 3 LaPointe.
Positive pres. blower, No. 5 Conner.
Compressors, 6x8, 8x8 and 9x8.
Drawing tables, adjust., 42"x6' top.
Gear cutter, No. 3—26 B. & S.
Gear miller, Bilton No 1.
Hammer, No. 1 Pettingell.
Hammer, 150 lb. Standard drop.
Oil separator, Springfield.
Pipe machines, 2", 4" & 6".
Pumps, Gould triplex, 6½x8".
Punch & shear, ½x½x10" throat.
Riveting hammers, High Speed Nos. 2, 3, 4 & 5-A.
Scale, 1500 lb. Toledo, dial type.
Sceleroscope, Shore type C.
Shear, 60" Peck, Stow & W., 18 ga.
Shear, No. 362 Robinson.
Shear, No.20 Quickwork, 30" throat.
Shear, circular, Pettingell, 60" thrt.
Tapping machine, Acme 6-spindle.
Threading mche., W. & P. 2-spindle.

THE OSBORNE & SEXTON MACHINERY COMPANY
COLUMBUS OHIO

Dept. H.

Specials For August

No. 24, 5-sp. New Britain Auto., excellent condition..$ 950.
24"x12' Boye & Emmes Lathe, quick change gears, taper attachment, excellent condition ..... 975.
21"x8' heavy-duty LeBlond, quick change gears, single pulley drive, like new ..... 875.
20"x8' Prentiss Tool Room Lathe, sgl. pulley dr., qk. change gears, apron reverse, excellent condition.. 750.
No. 6 Fellows Gear Shaper, 52,000 serial number, equal to new ..... 650.
23" Averbeck Shaper, excellent condition..... 750.
32x32x14' Gray Planer, 2 heads on rail, reversible motor drive, excellent condition..... 1475.

500 Other Bargains in our Warehouses

A. R. Marsh Machinery Co.

4900 West 73rd St., Cleveland, Ohio

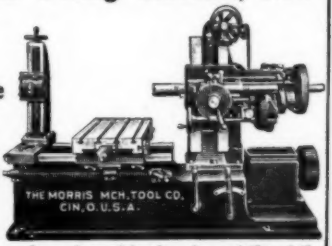
Morris Horizontal

Drilling and Boring Machine, New

With Factory Guarantee

$1,350

F. O. B. Cincinnati



We also have a number of used Lathes from 14" to 24" that are in good condition. Prices quoted on request.

The Morris Machine Tool Co.

CINCINNATI, OHIO

Real Bargains
Some Brand New

LATHES

14"x 6' Worcester Semi Quick Chge., New, $275.
16"x 8' Morris Q. C., New.
16"x 8' Morris Geared Head, New.
18"x 8' Morris Q. C., New, $750.
18"x10' Morris Q. C., New.
20"x12' LeBlond Single B. G.
21"x 8' LeBlond H. D. 220 v., D.C.
22"x10' Morris Geared Head, New.
22"x12' Morris Q. C., New.
26"x16' Davis, Single B. G.
30"x14' Niles, Single B. G., Cone.
32"x17' Pond Single B. G., Cone.
36"x18' Niles Single B. G., Cone.

SHAPERS & SLOTTERS

16" S. G. Stockbridge, New, $400.
16" B. G. Stockbridge, New, $600.
26" Cone Stockbridge, New, $1175.
26" Bement Dbl. Traveling Hd., Mtr.
15" Bement Slotter 220 v., D. C.
19" Putnam Slotter, Belt.

RADIALS

5' Niles Universal Gear Box.
5' Niles Semi-Universal Gear Box.
6' Niles Semi-Universal Gear Box.
6' Niles Full Universal Gear Box.
6' Niles Universal, Motor.

BORING MACHINES

62"—4" Bar N.-B.-P. Horiz. B & D, 220 v., D. C.
5" Bar Niles Floor Borer.
18" P. & W. Side Head Mill.
42" Niles B. & T. Mill.
44" Niles, with R. H. Turret Head, 220 v., D. C.
53" Niles B. & T. Mill.
62" Niles B. & T. Mill.
73" Niles B. & T. Mill.

PLANERS

26"x26"x 6' Niles, 1 Head.
26"x26"x 6' Gray, 1 Head.
30"x30"x 8' Niles-B.-P., 2 Heads, Rev. Motor.
32"x32"x10' Niles, 2 Heads.
32"x32"x12' Pond, 2 Heads, Motor.
36"x36"x10' Niles, 4 Heads.
38"x38"x12' Niles, 2 Heads.
38"x38"x16' Niles, 3 Heads.
42"x42"x12' Niles, 4 Heads.
42"x42"x14' Pond, 4 Heads, Motor.
48"x48"x16' Pond, 4 Heads.
48"x48"x20' Pond, 4 Heads, M. D.
96"x72"x12' N-B-P Rev. Motor.
10'x10'x36' Betts, Motor.
36"x36"x10' N.-B.-P. Frog Switch, Rev. Motor.

CRANE, PUNCHES & SHEARS, AND MISCELLANEOUS EQUIPMENT

25-Ton Niles 115' Span, 4-Motor Yard Crane and 610' Runway.
¾" Cap. L. & A. Plate Shear, Motor.
1" x 1" Cap. 48" L. & A. Punch and Shear, Motor.
⅞" x ⅞" Cap. 12" Throat L. & A. Horizontal Punch.
185 lb. Motor Driven Air Hammer.
800 lbs. Bement Sgl. Frame Hammer.
800 lbs. Bement Board Drop.
No. 2 Mitts & Merrill Keyseater.
48" B. & S. Spur Gear Cutter.
2" Cox Lever Grip Pipe Machine, D. C. Motor.
5" Whiton Revolving Centering Mch.
DA2-Wilson, 220 v., D. C. Welder.

The Niles Tool Works Company
Division Niles-Bement-Pond Company
Hamilton, Ohio

New York, 111 Broadway.
Birmingham, Brown-Marks Bldg.
Boston, 125 Purchase St.
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Cincinnati, 326 West Fourth St.
Cleveland, 1433 East Twelfth St.
Detroit, 5926 Cass Ave.
Los Angeles, 454 East Third St.
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Rochester, 89 East Ave.
St. Louis, 516 North Third St.
San Francisco, 917 Howard St.

Must Vacate Our Warehouse — Attractive Prices To Move Stock

BORING MILLS:	30" Bullard Vertical	$200.
	36" 48" Bridgeport Extension, 1 swivel head	325.
DRILLS:	5' Baush Radial, motor drive, with motor	$300.
LATHES:	14"x6' LeBlond, q. c. g.	$160.
	18"x8' Hendy, q. c. g.	400.
	21"x12' Johnson, hollow spindle, taper attach.	200.
	24"x14' Rahn-Mayer-Carpenter	650.
	24"x16½' Johnson, solid spindle	275.
	26"x10½' Walcott Hvy. Duty Q.C.G., 3, ea.	650.
	27"x12' Pittsburgh	550.
	42"x30' Pond, triple geared	900
	24"x6' Gisholt Turret, 6¼" hol. spdl.	850.
	3"x36" Jones & Lamson Flat Turret	800.
MILLING MCHES.:	No. 3 Cincinnati Plain, table 12"x3'11", as is	$250.
	No. 5 Brown & Sharpe Plain	675.
PRESSES:	Double Cam Action, 4" stroke	$100.
	Double Acting Drawing, 3¼" stroke	125.
SHEARS:	Waterbury-Farrell Rotary Shear, about 16 ga.	$ 40.
	Doelger-Kirsten High Knife Alligator, 3¾"cap.	
	Canton No. 5 High Knife Alligator, 3" cap.	1250.
HAMMERS:	25 lb. Bradley Cushioned Helve	$125.
	40 lb. Bradley Cushioned Helve	150.
	800 lb. Bement Single Frame Steam Forging	475.
	2000 lb. Bement Steam Drop	475.
SHAPERS:	20" Gould & Eberhardt	$375.
	16" Springfield	225.
	14" Gould & Eberhardt	175.
MISCELLANEOUS:	Pipe Folder, 32" hand power for 24 gauge	$ 20.
	Pipe Machine, Eaton-Cole-Burnham 1" to 4"	225.
	Pipe Machine, Eaton-Cole-Burnham 2½ to 8"	450.
	Planer, Pratt & Whitney 24½"x26"x6', 1 hd.	400
	Salamander for coke heating, inside dimensions 22"x22"x24", 38" high. Good as new	15.
	Saw, Gliem Cold, 22" dia., cap. 6" round	100.
	Saw, No. 3 Ryerson High Speed Friction	1250
	Slotter, 10" Bruckton	150.
	Steel, Rex AA High Speed Tool Steel for Armstrong Tools, new, as listed: 4¾-lbs., ⅝" square. 4" long	75 cts
	Swaging Machine, Excelsior, cap 3/16"	$ 50.

RUSSELL MACHINE COMPANY

1447 Oliver Building, PITTSBURGH, PA.

Classified Finding Index

Air Compressors, Electric
Petrick Bros., 2236 Belmont Ave., Chicago

Air Guns
Powell Co., Wm., Cincinnati

Arbors, Solid
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Auto-Gages For Dies
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Automatics
Cleveland Automatic Machine Co., Cleveland, O.
National Acme Company, Cleveland, O.
New Britain Machine Co., New Britain, Conn

Balancing Ways
Anderson Bros. Mfg. Co., Rockford, Ill
Bowsher Co., N. P., South Bend, Ind

Balls, Bearing and Burnishing
Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.

Barrels, Tumbling
Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 18th, Chicago

Bench Legs, Steel
New Britain Mchs. Co., New Britain, Conn.

Bending Machines, Hand and Power
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mchs. Co., T. H., 417 E. 51st., N. Y.
Lourie Hydraulic Co., Springfield, Ill.
Pedrick Tool & Machine Co., Philadelphia

Bending Rolls
Hendley & Whittemore Co., Beloit, Wis.

Bolt and Nut Machinery
Economy Engineering Co., Willoughby, O.
Foote-Burt Co., Cleveland, O.

Boring Bars
Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder
Pedrick Tool & Machine Co., Philadelphia

Boring, Drilling & Milling Machines
Landis Tool Co., Waynesboro, Pa.

Boring Machines, Horizontal
Avey Drilling Machine Co., Cincinnati
Pedrick Tool & Machine Co., Philadelphia

Boring Tools
Maxwell Products Co., Cleveland, Ohio.

Boring and Turning Machines, Vertical
Cincinnati Planer Co., Cincinnati, Ohio

Bulldozers, Hydraulic
Lourie Hydraulic Co., Springfield, Ill.

Burnishing Equipment, Ball
Abbott Ball Co., Elmwood, Conn.

Calipers, Vernier
Scherr Co., George, 142 Liberty St., N. Y.

Case-Hardening Compound
Kasenit Company, 2 & 4 Stone St., New York

Chucking Machines
National Acme Company, Cleveland, O.
New Britain Mchs. Co., New Britain, Conn.
Springfield Machine Tool Co., Springfield, O.

Chucks, Collet
Ames Co., B. C., Waltham, Mass.
Hardings Brothers, Inc., 1770 Bertean Ave., Chicago

Chucks, Drill
Eastern Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.
Jacobs Mfg. Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 18th, Chicago
Titan Tool Co., Erie, Pa.

Chucks, Drill and Tap
Scully-Jones & Co., 2012 W. 18th, Chicago

Chucks, Keyway Cutting
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Magnetic
J. & H. Electric Co., Providence, R. I.

Clamps, Die
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Clutches, Friction
Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, O.

Cold Saws
Burke Machine Tool Co., Conneaut, Ohio

Collets
Ames Co., B. C., Waltham, Mass.
Hardings Brothers, Inc., 1770 Bertean Ave., Chicago

Contract Work Wanted
Burke Machine Tool Co., Conneaut, O.

Counterbores and Spot Facers
Glenzer Co., J. C., Detroit, Mich.

Couplings, Friction Clutch
Conway Clutch Co., Cincinnati, O.

Cranes, Portable
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Canton Foundry & Mchs. Co., Canton, Ohio

Crank Pin Turning Machine
Pedrick Tool & Machine Co., Philadelphia

Cutters, Gear Shaper
National Tool Co., Cleveland, O.

Cutters, Keyseating
Davis Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 2012 W. 18th, Chicago

Cutters, Milling
Genesee Mfg. Co., Rochester, N. Y.
National Tool Co., Cleveland, O.

Cylinder Boring Machines, Portable
Pedrick Tool & Machine Co., Philadelphia

Demagnetizers
J. & H. Electric Co., Providence, R. I.

Dial Indicators
Federal Products Corp'n, Providence, R. I

Die Heads, Threading, Self Opening
National Acme Company, Cleveland, O.

Die Sets
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Drill Racks
Peerless Machine Co., Racine, Wis.

Drilling Machine Heads, Multiple
Gaterman Mfg. Co., W., Manitowoc, Wis.
United States Drill Head Co., Cincinnati

Drilling Machines, Bench
Ames Co., B. C., Waltham, Mass.
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Gaterman Mfg. Co., W., Manitowoc, Wis.
Merit Oil Equipment Co., Cleveland, O.
Sigourney Tool Co., Hartford, Conn.
Winterhoff Tool & Machine Co., Elkhart, Ind.
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

Drilling Machines, Flexible Shaft
Blax Flexible Shaft Co., 136 Liberty Street, New York

Drilling Machines, Horizontal
Gaterman Mfg. Co., W., Manitowoc, Wis.

Drilling Machines, Multiple Spindle
Avey Drilling Machine Co., Cincinnati
Foote-Burt Co., Cleveland, O.
Foedick Machine Tool Co., Cincinnati, O.
Gaterman Mfg. Co., W., Manitowoc, Wis.
Merit Oil Equipment Co., Cleveland, O.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Cincinnati Electrical Tool Co., Cincinnati, O.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N.A., 5001 N. Lincoln St., Chicago
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Post
Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Drilling Machines, Radial
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foedick Machine Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foote-Burt Co., Cleveland, O.
Foedick Machine Tool Co., Cincinnati, O.
Gaterman Mfg. Co., W., Manitowoc, Wis.
Leland-Gifford Co., Worcester, Mass.
Merit Oil Equipment Co., Cleveland, O.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

Drilling Machines, Vertical
Avey Drilling Machine Co., Cincinnati
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foote-Burt Co., Cleveland, O.
Foedick Machine Tool Co., Cincinnati, O.
Gaterman Mfg. Co., W., Manitowoc, Wis.
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Merit Oil Equipment Co., Cleveland, O.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Dust Handling Equipment
Knickerbocker Co., Jackson, Mich.

Emery Wheel Dressers and Cutters
Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Filing Machines, Die
Ames Co., B. C., Waltham, Mass.

Filing Room Equipment
Wardwell Mfg. Co., Cleveland, O.

Flexible Shafts
Blax Flexible Shaft Co., 136 Liberty Street, New York
Strand Co., N.A., 5001 N. Lincoln St., Chicago

Forges
Canedy-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop
New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gauges, Dial
Ames Co., B. C., Waltham, Mass.
Federal Products Corp'n, Providence, R. I.

Gauges, Piston and Piston Ring
Federal Products Corp'n, Providence, R. I.

Gauges, Thread
Federal Products Corp'n, Providence, R. I.

Gears
Boston Gear Works Sales Company, Norfolk Downs, Mass.

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench
Sedine Electric Co., 2256 W. Ohio St., Chicago
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mchc. & T. Co., Grand Rapids, Mich.
Landis Tool Co., Waynesboro, Pa.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical
Jarecki Mchc. & T. Co., Grand Rapids, Mich.
Landis Tool Co., Waynesboro, Pa.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mchc. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Porter Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill
Gallmeyer & Livingston Co., Grand Rapids, Mich.
La Salle Tool Co., La Salle, Ill.

Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Flexible Shaft
Blax Flexible Shaft Co., 136 Liberty Street, New York

Grinding Machines, Internal
Landis Tool Co., Waynesboro, Pa.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Portable Electric
Sedine Electric Co., 2256 W. Ohio St., Chicago
Cincinnati Electrical Tool Co., Cincinnati, O.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N.A., 5001 N. Lincoln St., Chicago

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mchc. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface
Gallmeyer & Livingston Co., Grand Rapids, Mich.
La Salle Tool Co., La Salle, Ill.
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Grinding Machines, Tap
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool
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Gallmeyer & Livingston Co., Grand Rapids, Mich.
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Hack Saw Machines
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Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

Hammers, Riveting
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

High Speed Steel, Drills, Cutters
Bernstein, Geo. M., 549 W. Washington Blvd., Chicago

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Chattanooga Mchy. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
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Genesee Mfg. Co., Rochester, N. Y.

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Blax Flexible Shaft Co., 136 Liberty Street, New York

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Bennett Mchy. Co., 50 Church St., New York
Bertolette Machine Tool Co., Inc., Jersey City, N. J.
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Botwinik Brothers, New Haven, Conn.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
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Shafts, Steel
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Smith & Mills Co., Cincinnati
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Shears, Hand
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Lewthwaite Machine Co., T. H., 417 E. 31st St., New York
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Spacing Washers
Detroit Stamping Co., Detroit, Mich.

Special Tools
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For Precision and Production

No. 2 Automatic Surface Grinder

Grinds Work 20" Long, 6" Wide and 10" High With 7" Wheel

Table travels automatically in both directions. A hand-power table movement can be operated without changing automatic feed.

Also has automatic cross feed in either direction with automatic stop. Wheel truing device is built integral with machine. Price, $550. F. O. B. La Salle, Ill.

You will find nothing better than the La Salle No. 2 Automatic for grinding dies, punches and a wide range of small tools, as well as for many manufacturing jobs. Exceptionally rigid, it has ample provision for preserving perfect alignment. Arranged for either wet or dry grinding, with belt or direct motor drive.

La Salle Grinders include our No. 1 at $115 and No. 3 Plain and Surface Grinder at $365 to $390; No. 2 Automatic Surface Grinder; and American Wet and Dry Drill Grinders in various sizes at $120 to $350—each a real leader in its class. ***Write us about the capacities of these modern Grinders.***

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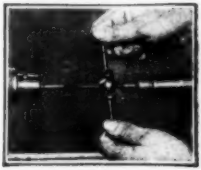

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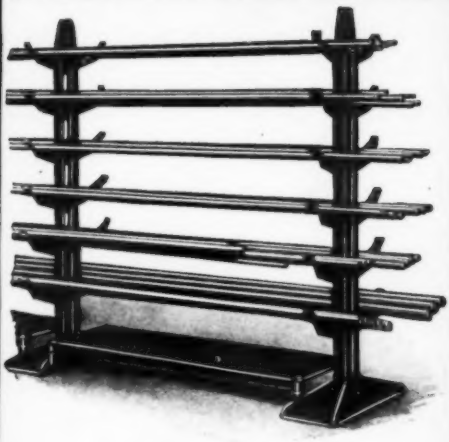

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